serv. 15 841

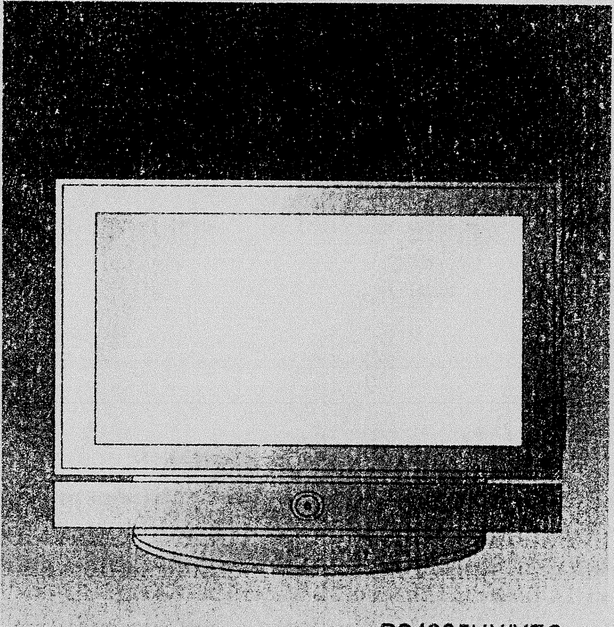
SAMSUNG

PLASMA DISPLAY TV

Chassis : D72A(P) Puccini_42S5
Model : PS42S5HX/XEC

SERVICE Manual

PLASMA DISPLAY TV



PS42S5HX/XEC

FEATURES

- DTV Ready PDP TV
- 2 Way 4 Speakers
- 1 HDMI input
- Slim line design
- Energy Saving
- 12 Bit image processing
  (687 billion color)

Table of Contents

Chapter 1 Precaution

- 1-1 Safety Precautions ... 1-1
- 1-2 Servicing Precautions ... 1-3
- 1-3 Static Electricity Precautions ... 1-4
- 1-4 Installation Precautions ... 1-5

Chapter 2 Product Specification

- 2-1 Product Features ... 2-1
- 2-2 Key Features ... 2-2
- 2-3 Specifications Analysis ... 2-5
- 2-4 Accessories ... 2-6

Chapter 3 Alignment & Adjustment

- 3-1 Service Instruction ... 3-1
- 3-2 How to Access Service Mode ... 3-2
- 3-3 Factory Data ... 3-3
- 3-4 Service Adjustment ... 3-8
- 3-5 Software Upgrade ... 3-10
- 3-6 Replacements & Calibration ... 3-14

Chapter 4 Exploded View & Part List

- 4-1 PS42S5HX/XEE ... 4-1
- 4-2 PS42S5HX/XEU ... 4-2
- 4-3 PS42S5HX/XEH ... 4-3

Chapter 5 Electrical Part List

- 5-1 PS42S5HX/XEE ... 5-1
- 5-2 PS42S5HX/XEU ... 5-2
- 5-3 PS42S5HX/XEH ... 5-3

Chapter 6 Troubleshooting

- 6-1 First Checklist for Troubleshooting ... 6-1
- 6-2 Checkpoints by Error Mode ... 6-2
- 6-3 Trouble-shooting with New Features ... 6-6
- 6-4 Troubleshooting Procedures by ASS'Y ... 6-9

Chapter 7 Block Diagram

- 7-1 Overall Block Diagram ... 7-1
- 7-2 Partial Block Diagram ... 7-2

Chapter 8 Wiring Diagram

- 8-1 Overall Wiring ... 8-1
- 8-2 Partial Wiring ... 8-2

Chapter 9 PCB Diagram

- 9-1 PDP Module, SMPS ... 9-1
- 9-2 Video Board, Function Key Borad, Power Button Board ... 9-4

Chapter 10 Schematic Diagram

- 10-1 Main ... 10-1
- 10-2 Function ... 10-2
- 10-3 Power/IR ... 10-3

Chapter 11 Operation Instruction & Installation

- 11-1 Product Features and Functions ... 11-1
- 11-2 New Features ... 11-6
- 11-3 Installation Notes and Precautions ... 11-8

Chapter 12 Disassembly & Reassembly

- 12-1 Overhaul Disassembly & Reassembly ... 12-1

Chapter 13 Circuit Description

- 13-1 Partial Block Descriptio ... 13-1
- 13-2 New Circuit Description ... 13-25

Chapter 14 Reference Information

- 14-1 Connection to a 3rd Party Device ... 14-1
- 14-2 Technical Terms ... 14-9

1. Precaution

To avoid possible damages or electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD..

1-1 Safety Precautions

1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure that no gaps exist between the cabinets for children to insert their fingers in to prevent children from receiving electric shocks. Gaps mentioned above include ventilation holes of a too great magnitude between the vaccum tube and the cabinet mask, and the improper installation of the rear cabinet.

   Errors may occur when the resistance is below 1.0 MΩ or over 5.2 MΩ.
   In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transistor for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).

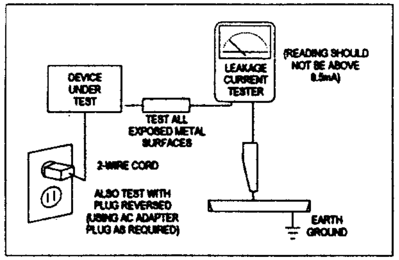

DEVICE UNDER TEST
LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Fig. 1-1 AC Leakage Test

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage. Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons.
   Without insulated transistors, the product can only be repaired safely when the chassis is connected to the earthed end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earthed ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new regular ones immediately. When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be bracketed with (⚠ ⚠).
    Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications).
    Irregular parts or materials may cause electric shock or fire.

11. Pay additional attention to the current leakage as the voltage between the power board and the ballast is 220 to 440v, i.e. very high.
    And also beware of possible electric shock from the primary power source.

1-2 Servicing Precautions

Warning 1: First carefully read the "Safety Instruction" in this service manual.
When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose. The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts are installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1 MΩ.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead. The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so ensure wearing protective gloves during the repair.

11. Due to the nature of plasma display panels, partial after-images may appear if a still picture is displayed on the screen for a long period of time.
    This is caused by brightness deterioration due to the storage effect of the panel, and to prevent this from happening, we recommend that the brightness and contrast are reduced.
    (e.g.) Contrast: 25, Brightness: 50

12. A plasma panel is a device which consists of a set of clustered pixels (cells).
    A plasma panel is approved if over 99.9% of the components satisfy the necessary conditions. A few cells may stay illuminated or may be always off, but you do not have to worry as this is an approved panel and well within the standard.

1-3 Static Electricity Precautions

1. Some semi-conductive ("solid state") devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or ass'ys. Alternatively, wear a dischargeable wrist-belt.
   (Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD ass'y and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals.
   Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices.
   Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit ass'y.

9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.

2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. **Make sure to turn the power off and unplug the power cord from the outlet before removing the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.**

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contacting the high-voltage cable or the antenna falling over may cause fire or electric shock.

7. When connecting the RF antenna, check for a DTV receiving system and install a separate DTV reception antenna for areas with no DTV signal.

8. When installing the product, leave enough space (10cm) between the product and the wall for ventilation purposes.
   A rise in temperature within the product may cause fire.

9. **When moving a PDP with attached speakers, detach the speakers first before moving the main body.**
   Moving the PDP main body without separating the speakers may cause the speakers to detach, possibly causing damage or injury.

MEMO

2. Product Specification

2-1 Product Features

Block	Specfication	Major IC	Remark
RF	Tuner	Alps TMQZ6-511A	
Power	Input Voltage : AC 100V ~ 220V Stand-By : 3W less		
Video	Scaler	SVP-EX62	(Trident)
	Sub Decoder	SAA7119	(Philips)
	Picture Enhance	DNIe-Lite	(Samsung)
	Video S/W	TEA6425*2	
	Component S/W	-	
	HDMI	Sii9993	(Silicon Image)
Sound	Sound Processor	MSP4410G	(Micronas)
	Sound Control	NSP6241A	
	Audio S/W	TEA6422*2	
	Sound Amp	TAS5122	
	Sound Output	15W+15W	
Control	CPU	M30620	(Renesas)
	Sub Micom	3F8668	(Samsung)
Remocon	TM76		
etc.	Cabinet	S5	
	Product Model	PS42S5S	
	Module	V4 42"SD	

■ Chip Description

- SVP-EX62 : 480i/576i, CVBS, Y/C, HDMI, PC input Video signal processing
- SAA7119 : CVBS, Y/C Sub Video signal , Scart RGB signal processing
- DNIe-Lite : Image Enhancer
- Sii9993 : HDMI signal receiver
- MSP4410G : SIF, Analog Audio Decoder
- NSP6241A : Sound Output Control
- TAS5122 : Sound Amp
- M30620 : Main Micom
- 3F8668 : Sub Micom

2-2 Key Features

Model	PS-42S5S
Dimensions	14255 (W) x 114 (D) x 825.4 (H) mm
Weight	59.2 kg
Voltage	AC 110 - 240V~ , 50 Hz
Power Consumption	290W
Number of Pixels	852 (H) x 480 (V)
Screen Size	42 inches
VIDEO input	TV (VHF, UHF Antenna) Scart1:CVBS/S-Video/RGB Scart2:CVBS/S-Video CVBS/S-Video COMPONENT:480i/480p/720p/1080i PC HDMI
AUDIO input	Scart1 Scart2 COMPONENT PC HDMI
AV Output	VIDEO (CVBS) AUDIO (L/R)
Audio Output	15W + 15W (8Ω)

■ H/W Configuration
- Video : SVP-EX62, TEA6425, BA7657F, DNIe-L
- Sound : MSP4440G, NSP6241A, TAS5122
- Tuner : TMQZ6-511A

■ S/W Configuration
- SVP-EX62 Trident Chip Control , DNIe-L
- CPU Master Control + Sub Micom, TTX Software
- Favorite CH, Label CH

■ Picture
- System : Video → PAL/SECAM/NTSC4.43,
  Sound → Analog
- Progressive
- Output resolution : 852*480
- OSD : Smart user Interface Grade1
- Picture Enhancement : DNIe-L
- Still picture, Noise reduction
- Comb Filter : 3D comb filter
- PIP : D/W, Large
- Panorama : Wide

■ Sound
- System : Stereo
- Dolby Digital : Tru Surround XT
- Output : 15W + 15W
- Speaker : built-in.

■ Feature
- Component Interface(480i/480p/720p/1080i, Y/Pb/Pr)
- Digital Interface : HDMI
- Picture Size : Auto Wide/16:9/4:3/Panorama/14:9/Zoom/Wide 4:3
- Auto Program
- Sleep Timer : 180 minute
- Clock
- Zoom, Previous channel, White Screen, Color Tone

■ In/Out Terminals(Rear)
- 1 AV Input, 1 SVHS Input
- AV Monitor Output
- Component Input : 480i / 480p / 720p / 1080i
- 15 Pin D-sub Input : ~ XGA (1024 x 768)
- 1 HDMI Input (HDCP) : DTV(480p / 720p / 1080i)
- 1 RF Input

■ Remocon
- TM76

■ Power Supply
- 100V ~ 240V

■ Power
- Standy-by : 3W less
- Max Power : 380W

■ HDMI
- 640x480p @59.94/60Hz
- 720x576p@59.94/60Hz
- 720x480p @59.94/60Hz
- 1280x720p @59.94/60Hz/50Hz
- 1920x1080i @59.94/60Hz/50Hz

■ The table below shows all of the display modes that are supported. (N : Negative, P : Positive)

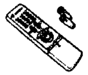
Resolution		V-Freq.(Hz)	H-Freq.(kHz)	Polarity		
				H	V	
IBM PC/AT Compatible	640 X 350	70.086	31.469	N	P	IBM
	720 X 400	70.087	31.469	P	N	IBM
	640 X 480	59.94	31.469	N	N	VESA DMT
		70	35	N/P	N/P	VESA GTF
		72.809	37.861	N	N	VESA DMT
		75	37.5	N	N	VESA DMT
	800 X 600	56.25	35.156	N/P	N/P	VESA DMT
		60.317	37.879	P	P	VESA DMT
		70	43.75	N/P	N/P	VESA GTF
		72.188	48.077	P	P	VESA DMT
		75	46.875	P	P	VESA DMT
	848 X 480	60	31.02	P	P	VESA DMT
		74.769	37.684	N	P	VESA CVT
	1024 X 768	60.004	48.363	N	N	VESA DMT
		70.069	56.476	N	N	VESA DMT
		72	57.672	N/P	N/P	VESA GTF
		75.029	60.023	P	P	VESA DMT

▶ The interlace mode is not supported.
▶ The television might operate abnormally if a non-standard video format is selected.
▶ 480i/p, 576i/p, 720p, or 1080i is not available in pc mode.

2-3 Specifications Analysis

Model		Puccini(V4)	Mozart (V3)	Nelson (V3)
Design				
Basic	Display Type	PDP TV	PDP TV	PDP TV
	Built-in Tuner	O	O	O
	Resolution	852*480	852*480	852*480
	PDP Module	V4	V3	V3
	Screen Size	42 inches	42 inches	42 inches
	Aspect Ratio	16:09	16:09	16:09
	Power Consumption	290W	330W	330W
	Dimensions	14255 (W) x 114 (D) x 825.4 (H) mm	14255 (W) x 114 (D) x 825.4 (H) mm	14255 (W) x 114 (D) x 825.4 (H) mm
	Weight	59.2 kg	59.2 kg	59.2 kg
Picture	Brightness	1300cd/m2	1000cd/m2	1000cd/m2
	Contrast Ratio	10000:1	3000:01:00	3000:01:00
	Image Enhancer	DNIe-L	DNIe 3	DNIe 3
	Digital Comb Filter	O	O	O
Audio	Equalizer	O	O	O
	Auto Volume	O	O	O
	Surround Sound	SRS TruSurround XT	SRS TruSurround XT	SRS TruSurround XT
	Speaker Output	15W +15W	15W +15W	15W +15W
	Speaker	Included	Included	Included
Features	PIP	O	O	O
	Double Screen	O	O	O
	Caption	X	X	X
	Still Image	O	O	O
	My Color Control	O	O	O
	Color Weakness	O	O	O
	Energy Saving	O	X	X
	Anynet	X	X	X
	D-Net(IEEE1394 S.400)	X	X	X
	POD	X	X	X
	Gemstar (TV Guide On Screen)	X	X	X
	Screen Burn Protection	O	O	O
Connections	Antenna	1Input	1Input	1Input
	CVBS	1AV	3AV	1AV
	S-Video	1Input	2Input	1Input
	Component(Y/PB/PR)	1Input	1Input	1Input
	PC(D-SUB)	1Input(15Pin D-Sub)	1Input(15Pin D-Sub)	1Input(15Pin D-Sub)
	DVI	X	O	O
	HDMI	1Input	X	X
	Sub Woofer	X	X	X
	Optical	X	X	X
	Coaxial	X	X	X

2-4 Accessories

Accessories		Item	Item code	Remark
Supplied Accessories		User Manual	BN68-00827B	Samsung Service center
		Remote Control AAA Batteries	BN59-00468A 4301-000103	
		Power Cord	3903-000145	
Accessories that can be purchased additionally		S-VIDEO Cable	-	Internal shopping mall
		HDMI Cable	-	
		HDMI/DVI cable	-	
		Component Cables (RCA)	-	
		PC Cable	-	
		PC Audio Cable	-	
		Scart Cable	-	
		Antenna Cable	-	

3-3 Factory Data

★ The underlined are items applied during the service adjustment. None of the others should be adjusted.

Fatory mode OSD Display

1. Calibration
2. Option Table
3. White Balance
4. SVP-EX
5. SAA7119
6. MSP34XX/44XX
7. YC Delay
8. Adjust
9. DNIe
10. Chip Debugger OFF
11. Checksum
12. Reset
13. Spread Spectrum
14. Logic

T-PCN42PEUS-XXXX
SUB Micom Ver-xxxx

1. Calibration

① AV Calibration
② PC Calibration
③ DTV Calibration

2. Option Table

No	ITEM	Initial Value	Remark
1	Panel Option	42S5S	42S5S/42D5S/42S5H
2	Gamma	Mode - 2	Mode - 1,2,3,4
3	Analog Dimming	Mode - 3	Mode - 1,2,3,4
4	Auto Power	On	ON/OFF
5	Key Lock	OFF	ON/OFF
6	Anynet	OFF	ON/OFF
7	DDC Write	OFF	ON/OFF
8	LNA	ON	ON/OFF
9	Ant. Gain Display	OFF	ON/OFF
10	Language	English	Osd language
11	Auto FM	OFF	ON/OFF
12	High Deviation	Off	ON/OFF
13	TTX	On	ON/OFF
14	TTX List	Flop	Flop/List
15	TTX TOP	Off	ON/OFF
16	TTX Group	Auto Language	TTX language
17	TTX Level	Level 1.5	LEVEL 1.5 / 2.5
18	Shift Test	OFF	ON/OFF
19	Sound Delay1	OFF	ON/OFF
20	Sound Delay2	OFF	ON/OFF
21	Debug	OFF	ON/OFF

3. White Balance

No	Item	Range	TV/AV	Component	PC	DVI(HDMI)
1	Sub-Briteness	0~255	7	128	130	130
2	R-offset	0~255	138	128	138	138
3	G-offset	0~255	128	128	128	128
4	B-offset	0~255	146	128	144	144
5	Sub-Contrast	0~63	36	32	32	32
6	R-offset	0~255	128	128	128	128
7	G-offset	0~255	128	128	128	128
8	B-offset	0~255	148	128	128	128

4. SVP-EX

①ComB Filter

No	Item	Range	Initial Value	Remark
1	Y-Filter	0 ~ 255	80H	
2		0 ~ 255	80H	
3		0 ~ 255	80H	
4		0 ~ 255	80H	
5		0 ~ 255	80H	

②Peaking

No	Item	Range	Initial Value	Remark
1	V-Peaking	0 ~ 255	80H	
2	Peaking Delay	0 ~ 255	80H	
3	Peaking Gain	0 ~ 255	80H	
4	Peaking Width	0 ~ 255	80H	
5	Praking f0	0 ~ 255	80H	

③NR

No	Item	Range	Initial Value	Remark
1	Y-NR-Off	0 ~ 255	80H	
2	C-NR-Off	0 ~ 255	80H	
3	Y-NR-ON	0 ~ 255	80H	
4	C-NR-ON	0 ~ 255	80H	

④Deinterlace

No	Item	Range	Initial Value	Remark
1	Motion	0 ~ 255	80H	
2			80H	
3			80H	
4			80H	

⑤Picture Gain Adjust

No	Item	Range	TV/AV/S_Video	Component	PC	DVI/HDMI	
1	TCD3 Contrast	0 ~ 255	AV Calibration	78h			
2	TCD3 Brightness	0 ~ 255	AV Calibration	20h			
3	TCD3 CR Saturation	0 ~ 255	78h				
4	TCD3 CB Saturation	0 ~ 255	78h				
5	TCD3 YC Delay	0 ~ 15	00h				
		Range	480I/576I/480P/576P/1080I	720P	PC	HDMI	
6	Analog Y/G offset	00 ~ 255		DTV Calibration	PC Calibration	00 40h	
7	Analog PB/B offset	00 ~ 255		DTV Calibration	PC Calibration	02 00h	
8	Analog PR/R offset	00 ~ 255		DTV Calibration	PC Calibration	02 00h	
9	Analog Y/G Gain	00 ~ 255	D6h		E9h	D6h	
10	Analog PB/B Gain	00 ~ 255	FEh		E9h	FEh	
11	Analog PR/R Gain	00 ~ 255	FEh		E9h	FEh	
12	Black Level Setting	00 ~ 255	00h				
13	Brightness(SVP)	0 ~ 255	00h				

5. SAA7119

No	Item	Range	Initial Value
1	HTC	00 ~ 255	2
2	ATVT	00 ~ 255	1
3	LUFI	00 ~ 255	5
4	NAICO_Brig	00 ~ 255	128
5	NAICO_Cont	00 ~ 255	64
6	NAICO_Satu	00 ~ 255	64
7	NAICO_Hue	00 ~ 255	3
8	COMP_Brig	00 ~ 255	162
9	COMP_Cont	00 ~ 255	92
10	COMP_Satu	00 ~ 255	64
11	TASKA_Brig	00 ~ 255	140
12	TASKA_Cont	00 ~ 255	64
13	TASKA_Satu	00 ~ 255	64
14	LIMOD	00 ~ 255	0
15	LIFIL	00 ~ 255	2
16	LIWGT	00 ~ 255	3

6. MSP34XX/44XX

No	Item	Range	Initial Value
1	FM-Prescale	00 ~ 255	20h
2	NT-M-Prescale	00 ~ 255	20h
3	SECAM-L-Prescale	00 ~ 255	22h
4	AV-Prescale	00 ~ 255	1Ah
5	I2S_1 Prescale	00 ~ 255	10h
6	I2S_2 Prescale	00 ~ 255	10h
7	Carrier Mute	00 ~ 255	42h
8	Pilot High	00 ~ 255	0Eh
9	Pilot Low	00 ~ 255	07h

7. YC Delay

No	Item	Range	TV/AV/S_Video	Component	PC	DVI/HDMI	Remark
1	RF PAL-B/G	00 ~ 255	102	77h	77h	77h	-
2	RF PAL-D/K	00 ~ 255	136				
3	RF PAL- I	00 ~ 255	102				
4	RF SECAM-B/G	00 ~ 255	51				
5	RF SECAM-D/K	00 ~ 255	34				
6	RF SECAM-L/L'	00 ~ 255	51				
7	RF NTSC3.58	00 ~ 255	187				
8	RF NTSC4.43	00 ~ 255	187				
9	AV PAL	00 ~ 255	67				
10	AV SECAM	00 ~ 255	34				
11	AV NTSC 3.58	00 ~ 255	102				
12	AV NTSC4.43	00 ~ 255	102				
13	AV PAL60	00 ~ 255	119				

8. Adjust

No	Item	Range	TV/AV/S_Video	Component	PC	DVI/HDMI	Remark
1	Video Mute Time		10				-
2	Melody Volume	0 ~ 20	5				
3	TTX Contrast	0 ~ 100	50				
4	TTX Brightness	0 ~ 100	50				
5	TTX Color	0 ~ 100	50				
6	Dynamic Contrast	0 ~ 100	100				
7	Dynamic Color	0 ~ 100	50				
8	Dynamic Sharpness	0 ~ 100	60				
9	Standard Contrast	0 ~ 100	90				
10	Standard Brightness	0 ~ 100	80				
11	Standard Color	0 ~ 100	70				
12	Standard Sharpness	0 ~ 100	70				
13	Movie Contrast	0 ~ 100	60				
14	Movie Brightness	0 ~ 100	50				
15	Movie Color	0 ~ 100	50				
16	Movie Sharpness	0 ~ 100	40				
17	RF_dB_1	0 ~ 255	0				
18	RF_dB_2	0 ~ 255	0				
19	RF_dB_3	0 ~ 255	0				

9. DNIe Lite

No	Item	Range	TV/AV/S_Video	TV/AV/S_Video	Component	PC	DVI/HDMI
1	PATT_SEL	DNIe Lite 0x002C [13:08]	0 ~ 63	0			
2	BLACK_TILT	DNIe Lite 0x005E [15:08]	00 ~ 255	120	120	80	120
3	BLACK_GAINMAX	DNIe Lite 0x00B9 [09:00]	00 ~ 1023	85	85	93	95
4	TEST_MCC	DNIe Lite 0x00C1 [12]	0 ~ 1	0			
5	OVERLAP_MCM	DNIe Lite 0x00C1 [11:10]	00 ~ 03	0			
6	AREA_EN_MCC	DNIe Lite 0x0062 [15:11]	00 ~ 31	31			
7	R-Offset(Post)	DNIe Lite 0x0080 [09:00]	-512 ~ 511	0	0	0	0
8	G-Offset(Post)	DNIe Lite 0x0081 [09:00]	-512 ~ 511	0	0	0	0
9	B-Offset(Post)	DNIe Lite 0x0082 [09:00]	-512 ~ 511	0	0	0	0
10	R-Gain(Post)	DNIe Lite 0x007B [07 : 00]	0 ~ 255	128	128	128	128
11	G-Gain(Post)	DNIe Lite 0x007C [15 : 08]	0 ~ 255	128	128	128	128
12	B-Gain(Post)	DNIe Lite 0x007C [07 : 00]	0 ~ 255	128	128	128	128
13	Com_Offset_Sel(Post)	DNIe Lite 0x00F2 [13]	0 , 1	1			
14	Com_Gain_Sel(Post)	DNIe Lite 0x00F2 [14]	0 , 1	1			

10. Chip Debugger : ON/OFF

11. Checksum XXXX XXXX

12. Reset

13. Spread Spectrum

14. Logic

No	Item	Range	Initial Value
1	Int/Ext Sel		0
2	Pat Sel		0
3	FCRL CON		0
4	Image Sticking		0
5	Error Mode Check		0
6	Error Code Table		0
7	Vs Reference		0
8	Vs Average		0
9	Vs to D/A		0
10	Va Reference		0
11	Va Average		0
12	Va to D/A		0

3-4 Service Adjustment

3-4-1 White Balance Adjustment

1. W/B Adjustment is required for the following two modes : : Component → Video
   (Signal equipment : MSPG-925LTH, Measurement equipment : CA210)
   ※ To adjust HDMI, use the HDMI ↔ DVI conversion cable, and connect the DVI output from MSPG-925LTH to the HDMI input.

2. Adjustment Method
-Component and Video mode Adjustment PC, HDMI mode offset.

※ Thus, Micom saves the PS42S5S W/B data separately for each memory mode of the block

- White Balance Coordinates by Mode

		VIDEO	COMPONENT
H/L (High Light)	x	265	265
	y	265	265
	Y(fL)	31	21
L/L Low Light	x	280	280
	y	285	285
	Y(fL)	1.3	0.8

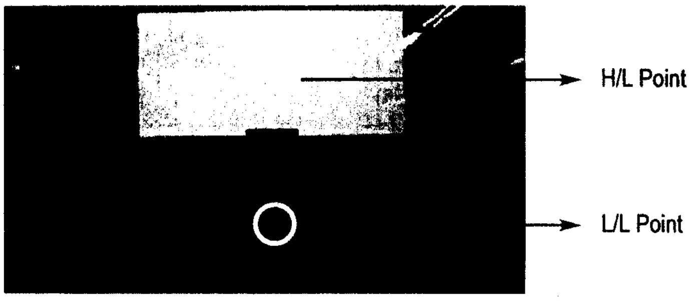
1. Pattern Generator Device: 925 LTH (Manufacturer: Master)

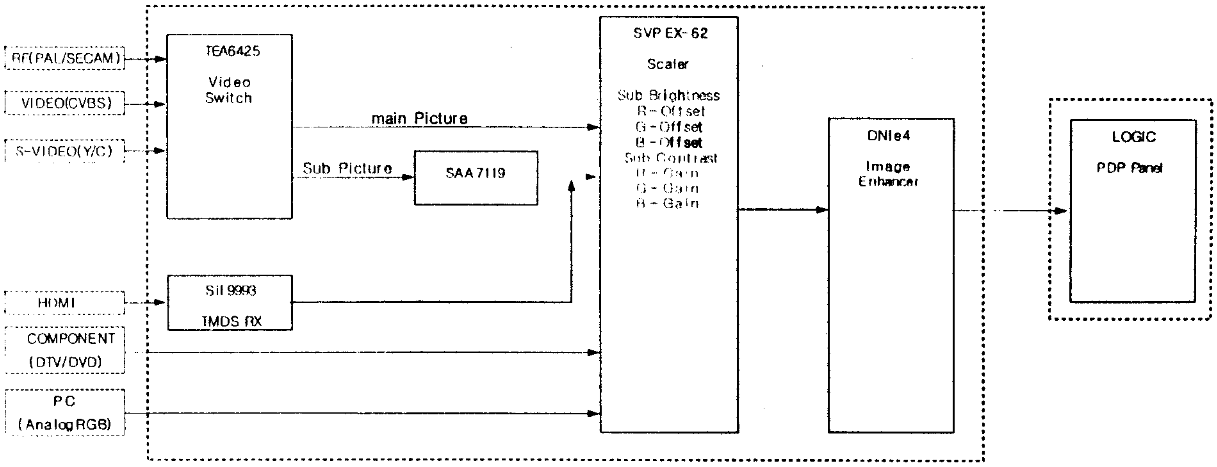
2. Adjust Pattern : ABL Pattern(Master 925LTH #16 Pattern)

3. Adjust Timing : Video - PAL (Master 925LTH Model #2)
   Component - 720P(Master 925LTH Model # 6)

4. The adjustment procedures for each mode are described as follows:
   1) Component
      ① Send the Toshiba ABL Pattern (Pattern #16) of the 1080i (Model #5) resolution signal to theComponent in port using the Master 925 LTH.
      ② Enter Factory mode, move to "White Balance" and click Select.
      ③ Set the coordinates of H/L and L/L by adjusting "Sub Contrast", "Sub Bright", "R Drive", "G Drive", "B Drive", "R Cutoff" , "G Cutoff" , and "B Cutoff".

   2) Video
      ① Send the Toshiba ABL Pattern (Pattern #16) of the 1080i (Model #5) resolution signal to the Video in port using the Master 925 LTH.
      ② Enter Factory mode, move to "White Balance" and click Select.
      ③ Set the coordinates of H/L and L/L by adjusting "Sub Contrast", "Sub Bright", "R Drive", "G Drive", "B Drive", "R Cutoff" , "G Cutoff" , and "B Cutoff".

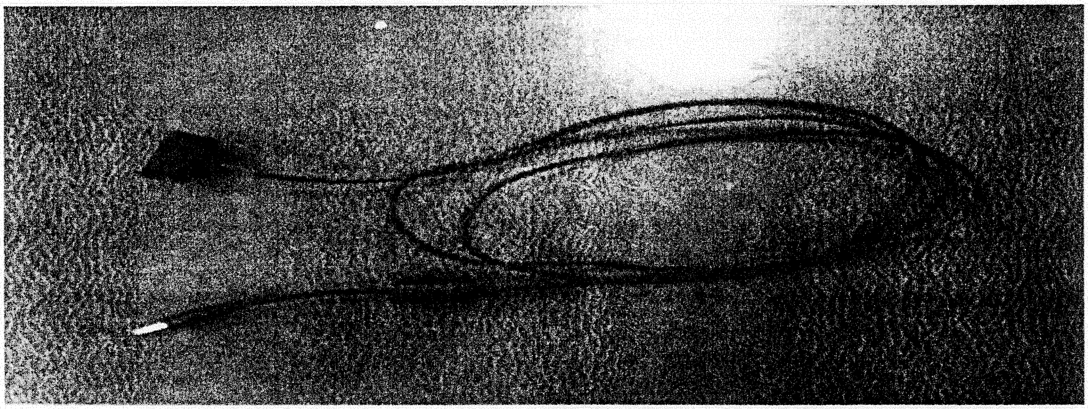

H/L Point
L/L Point

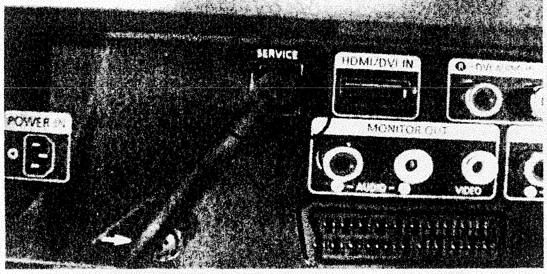

RF(PAL/SECAM)
VIDEO(CVBS)
S-VIDEO(Y/C)
HDMI
COMPONENT (DTV/DVD)
PC (Analog RGB)
TEA6425
Video Switch
main Picture
Sub Picture
SAA7119
SiI 9993
TMDS RX
SVP EX-62
Scaler
Sub Brightness
R-Offset
G-Offset
B-Offset
Sub Contrast
R-Gain
G-Gain
B-Gain
DNIe4
Image Enhancer
LOGIC
PDP Panel

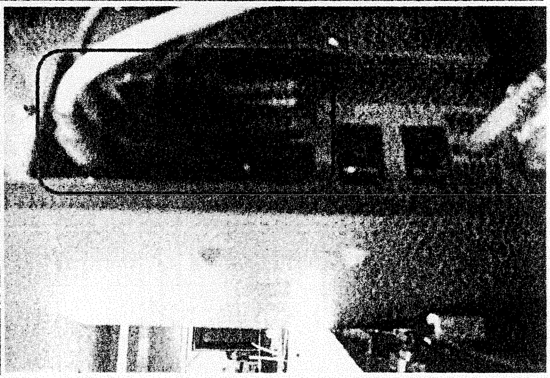
3-5 Software Upgrade

3-5-1 Digital Board TL945 Flash Upgrade

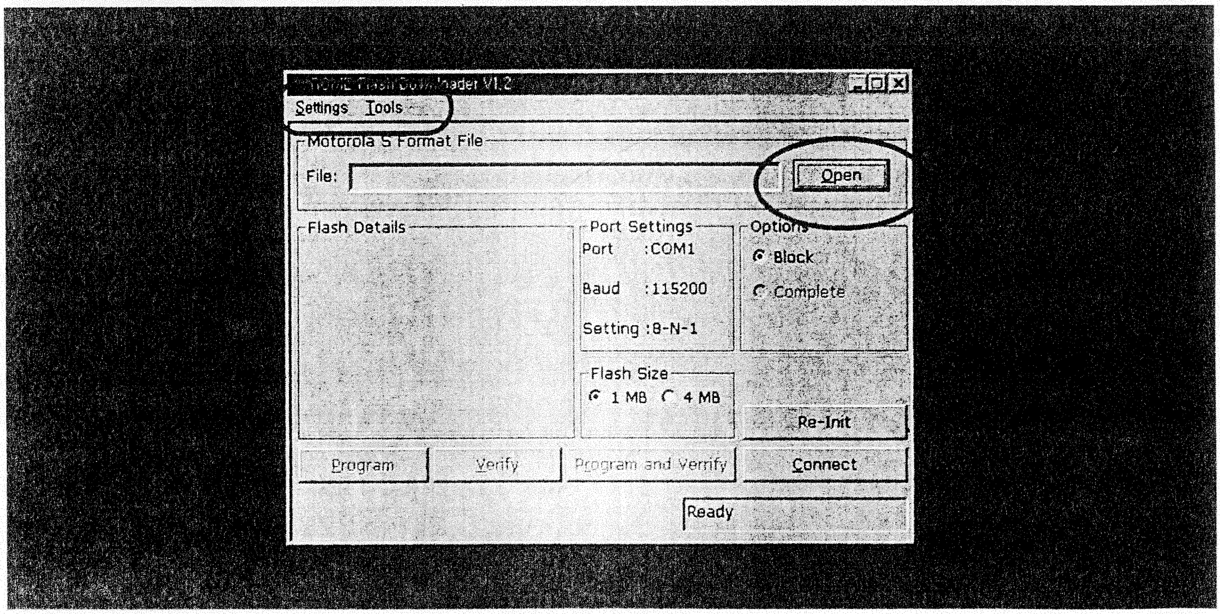
1. Connect one end of the RS-232C cable to the PC COM port and the other end of the cable to the PDP Service port while the power of the PDP is off.




SERVICE
HDMI/DVI IN
POWER IN
MONITOR OUT
AUDIO
VIDEO



2. Rome Flash Downloader.


ROME Flash Downloader V1.2
Settings
Tools
Motorola S Format File
File:
Open
Flash Details
Port Settings
Options
Complete
Flash Size
4 MB
Re-Init
Program
Verify
Program and Verify
Connect

Port :COM1

Baud :115200

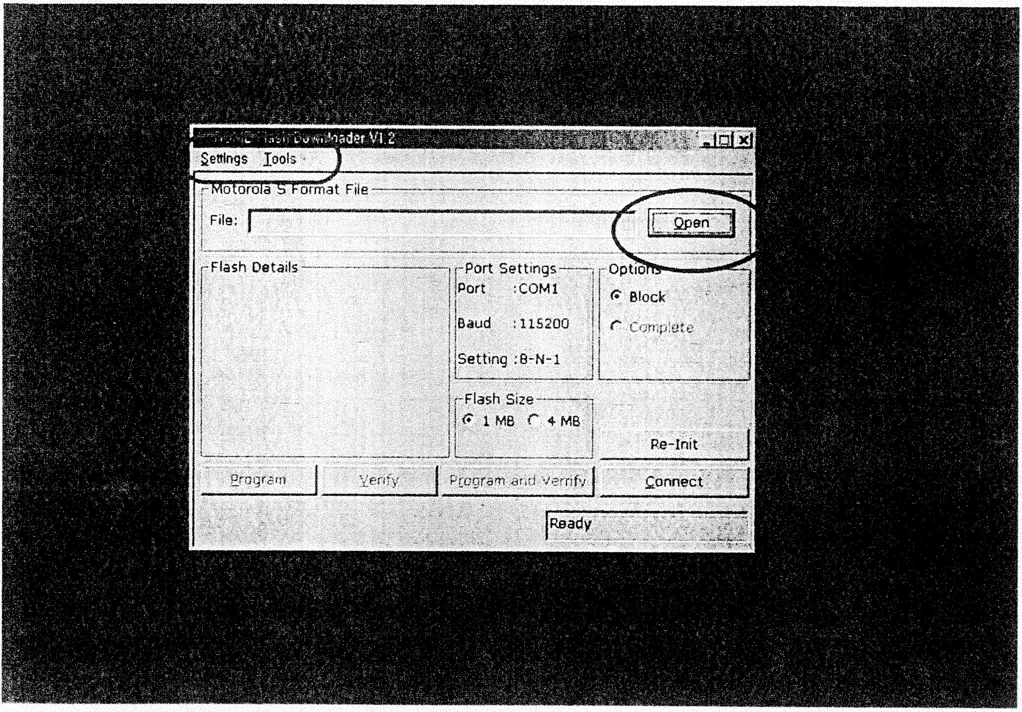
Setting :8-N-1

● Block

● 1 MB

Ready

3. When the Flash Downloader is launched, click the Open button.


Flash Downloader V1.2
Settings
Tools
Open
Program
Verify
Program and Verrify
Re-Init
Connect

Motorola S Format File

File:

Flash Details

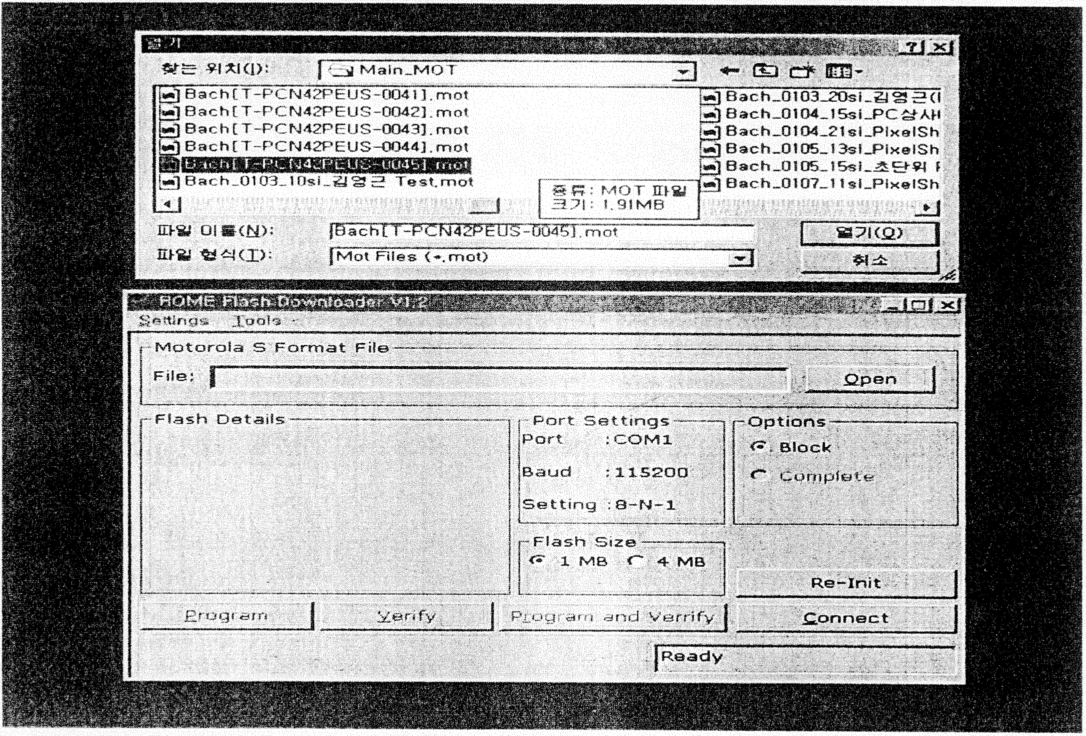
Port Settings
Port :COM1
Baud :115200
Setting :8-N-1

Options
● Block
○ Complete

Flash Size
● 1 MB ○ 4 MB

Ready

4. Select a file to be downloaded from the computer.


열기
Settings
Tools
Open
Program
Verify
Program and Verrify
Re-Init
Connect
열기(O)
취소

찾는 위치(I): Main_MOT

Bach[T-PCN42PEUS-0041].mot
Bach[T-PCN42PEUS-0042].mot
Bach[T-PCN42PEUS-0043].mot
Bach[T-PCN42PEUS-0044].mot
Bach[T-PCN42PEUS-0045].mot
Bach_0103_10si_김영근 Test.mot
Bach_0103_20si_김영근(
Bach_0104_15si_PC상사
Bach_0104_21si_PixelSh
Bach_0105_13si_PixelSh
Bach_0105_15si_초단위
Bach_0107_11si_PixelSh

종류: MOT 파일
크기: 1.91MB

파일 이름(N): Bach[T-PCN42PEUS-0045].mot
파일 형식(T): Mot Files (*.mot)

ROME Flash Downloader V1.2

Motorola S Format File

File:

Flash Details

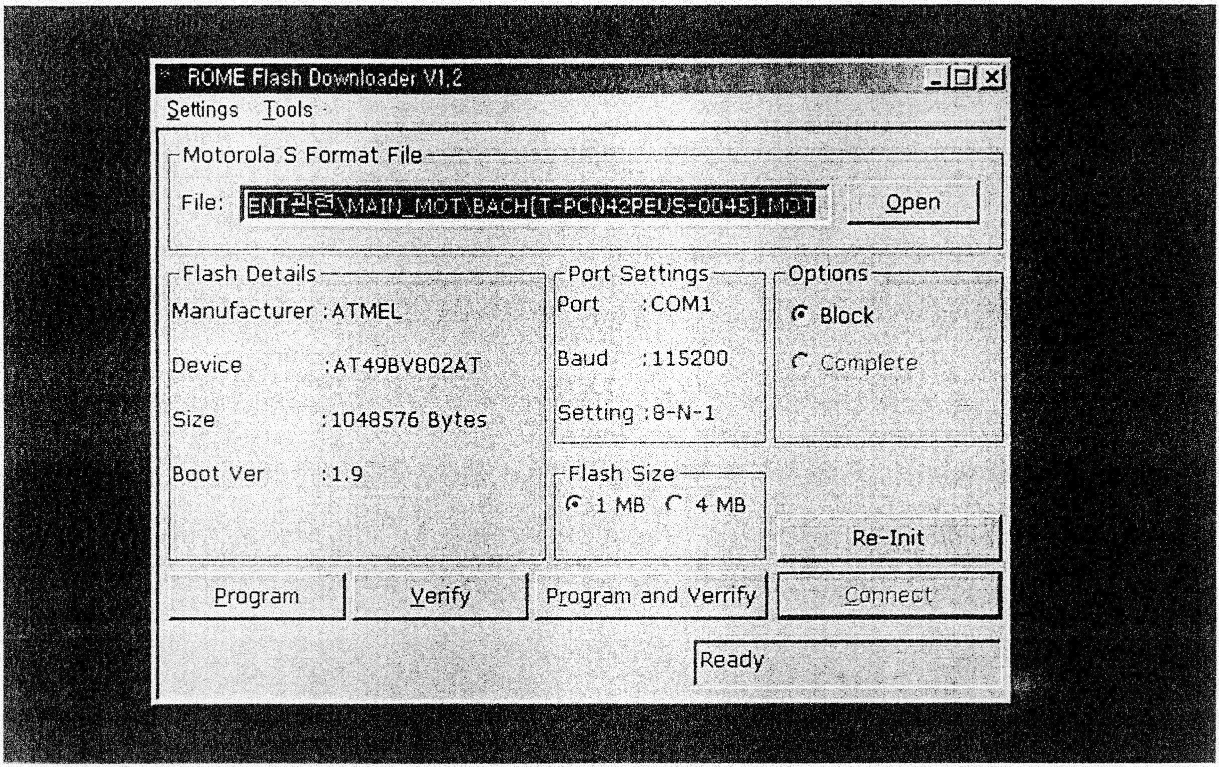
Port Settings
Port :COM1
Baud :115200
Setting :8-N-1

Options
● Block
○ Complete

Flash Size
● 1 MB ○ 4 MB

Ready

5. After selecting a target file, click the Connect button and turn the power on. When the program is activated, Ready click.


ROME Flash Downloader V1.2
Settings
Tools
Open
Program
Verify
Program and Verrify
Connect
Re-Init

Motorola S Format File
File: ENT관련\MAIN_MOT\BACH[T-PCN42PEUS-0045].MOT

Flash Details
Manufacturer : ATMEL
Device : AT49BV802AT
Size : 1048576 Bytes
Boot Ver : 1.9

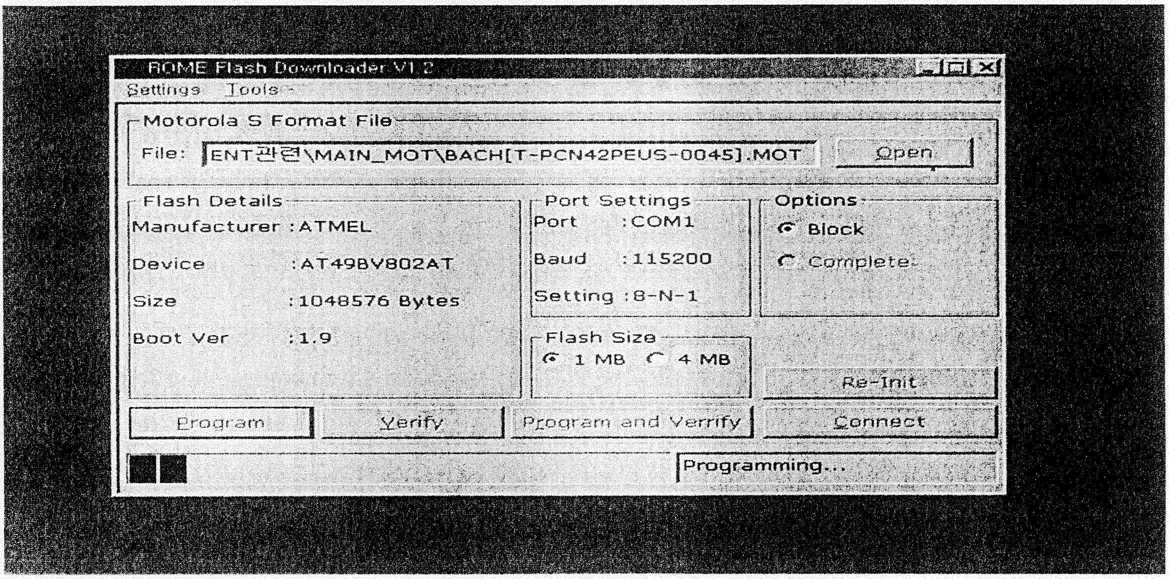
Port Settings
Port : COM1
Baud : 115200
Setting : 8-N-1

Options
● Block
○ Complete

Flash Size
● 1 MB ○ 4 MB

Ready

6. Note that the power must not be turned off during the download.


ROME Flash Downloader V1.2
Settings
Tools
Open
Program
Verify
Program and Verrify
Connect
Re-Init

Motorola S Format File
File: ENT관련\MAIN_MOT\BACH[T-PCN42PEUS-0045].MOT

Flash Details
Manufacturer : ATMEL
Device : AT49BV802AT
Size : 1048576 Bytes
Boot Ver : 1.9

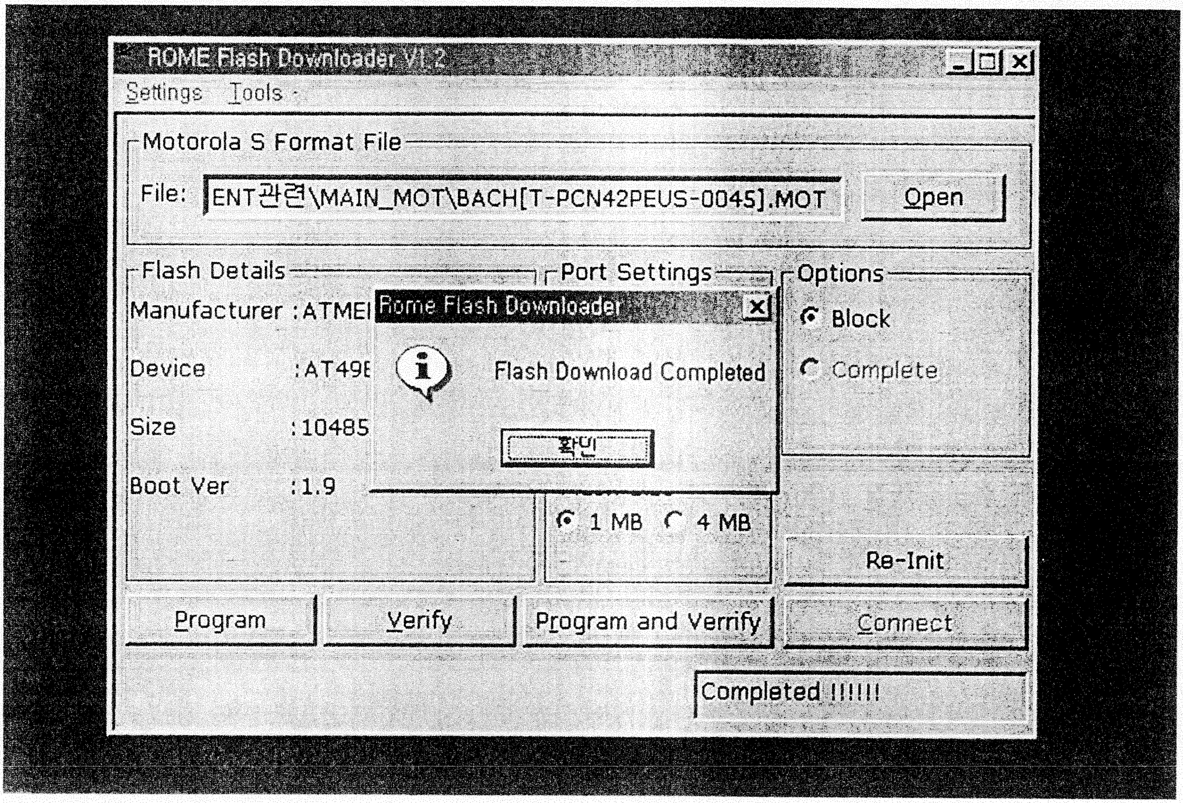
Port Settings
Port : COM1
Baud : 115200
Setting : 8-N-1

Options
● Block
○ Complete

Flash Size
● 1 MB ○ 4 MB

Programming...

7. After the download is finished, the Flash Download Completed popup window opens. That indicates S/W upgrade is completed.


ROME Flash Downloader V1.2
Settings
Tools
Motorola S Format File
Open
Flash Details
Port Settings
Options
Rome Flash Downloader
확인
Re-Init
Program
Verify
Program and Verrify
Connect

File: ENT관련\MAIN_MOT\BACH[T-PCN42PEUS-0045].MOT

Manufacturer :ATME

Device :AT49

Size :10485

Boot Ver :1.9

Flash Download Completed

● Block ○ Complete

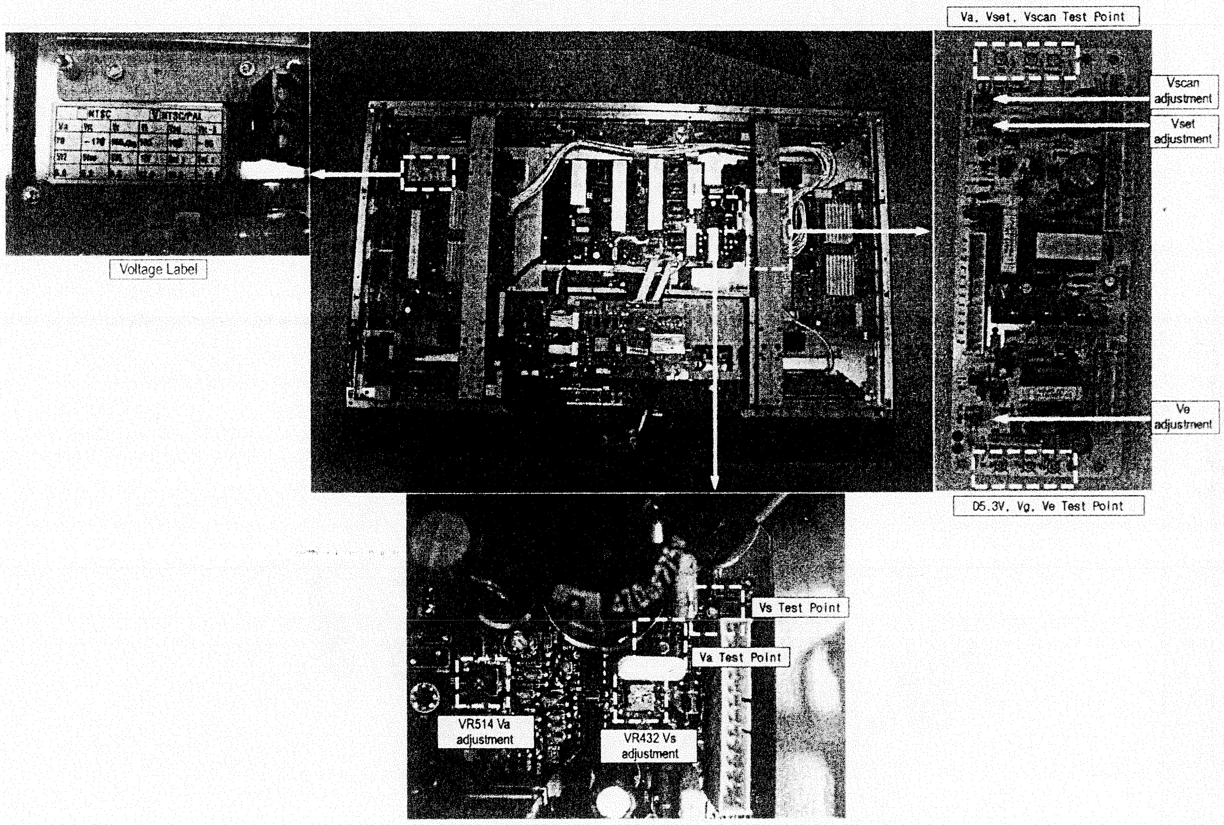
● 1 MB ○ 4 MB

Completed !!!!!!

3-6 Replacements & Calibration

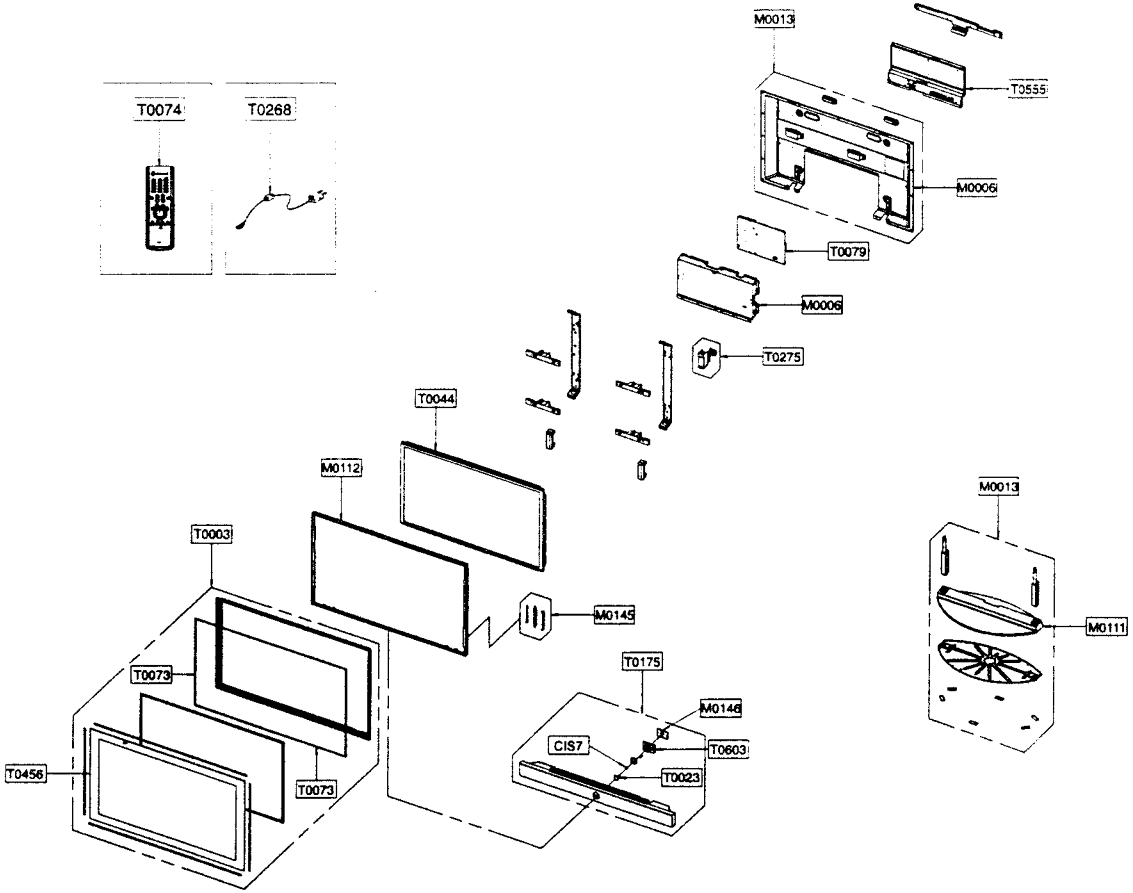
3-6-1 Voltage Adjustment

※ When the SMPS is replaced, the Va, Vs voltages must be checked and adjusted to the proper levels indicated on the panel sticker.


Va, Vset, Vscan Test Point
Vscan adjustment
Vset adjustment
Ve adjustment
D5.3V, Vg, Ve Test Point
Voltage Label
Vs Test Point
Va Test Point
VR514 Va adjustment
VR432 Vs adjustment

4-3 PS42S5HX/XEH

You can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr



Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
CIS7	AA61-60003B	SPRING ETC-CS	-,SUS304,-,-,OD11.2,N7,OD1	1	S.N.A	
M0006	BN63-01634C	COVER-REAR SUB	42S5,SECC,T1.0	1	S.N.A	
M0006	BN63-01633C	COVER-REAR	42D5,SECC,T0.5	1	S.N.A	
M0013	BN96-02140C	ASSY STAND P-BASE	42S5H,XEC,HIPS HB,SV01	1	S.A	
M0013	BN96-01786C	ASSY COVER P-REAR	SP-R4232,SECC,BLM 5113	1	S.A	
M0111	BN63-01813G	COVER-STAND	42S5H,XEC,HIPS,T3.5,HB,SV012	1	S.N.A	
M0112	BN63-01631B	COVER-FRONT	42S5,HIPS,HB,XEC,SV012P	1	S.N.A	
M0145	BN96-02049C	ASSY BOARD P-FUNCTION	SP-R4232,CT5000-36	1	S.N.A	
M0146	BN96-02050B	ASSY BOARD P-POWER & IR	SCHUBERT,CT5000-	1	S.N.A	
T0003	BN96-01773B	ASSY COVER P-FRONT	42P5,42S5,EXPORT	1	S.A	
T0023	BN96-01788A	ASSY COVER P-KNOB POWER	SPD-42P5HD	1	S.N.A	
T0044	BN96-01886A	ASSY PDP MODULE P	M1,SPD-42P5HD,D71A,V4,	1	S.A	
T0073	AA63-01078A	GASKET-EMI	42P5,T1.5,7,1006	2	S.N.A	
T0073	AA63-01079A	GASKET-EMI	42P5,T1.5,W7,L614.5	2	S.N.A	
T0074	BN59-00468A	REMOCON	PS42S5S,TM76A,59*22*209,ZILOG MB	1	S.A	
T0079	BN94-00683B	ASSY PCB MISC-MAIN	PS42S5HX/XEC,D72A,EU,	1	S.A	
T0175	AA96-02814A	ASSY SPEAKER P	8ohm,S5,42,15W	1	S.A	
T0268	3903-000145	CBF-POWER CORD	DT,EU,FP3/YES,U(IEC C13-R	1	S.A	
T0275	BN96-02369A	ASSY MISC P-INLET	HP-R4252,STRAUSS,DOCUM	1	S.A	
T0456	BN67-00144A	GLASS-FILTER EMI	42P5,Mesh,48%,1053*639,	1	S.A	
T0555	BN96-01392D	ASSY MISC P-BRKT TERMINAL	42S5,XEC,SECC	1	S.N.A	
T0603	BN64-00338A	WINDOW-RMC	42P5,ACRYL,5%	1	S.N.A	

5. Electrical Part List

5-1 PS42S5HX/XEE Service Item

Yon can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA
CIS3	BN40-00042A	TUNER	TMQZ6-405A,PAL-CW,PAL Hyper,38.9MH	1	S.A
T0074	BN59-00468A	REMOCON	PS42S5S,TM76A,59*22*209,ZILOG MB	1	S.A
T0079	BN94-00683B	ASSY PCB MISC-MAIN	PS42S5HX/XEC,D72A,EU,	1	S.A
T0003	BN96-01773B	ASSY COVER P-FRONT	42P5,42S5,EXPORT	1	S.A
M0013	BN96-02140C	ASSY STAND P-BASE	42S5H,XEC,HIPS HB,SV01	1	S.A
M0013	BN96-01786C	ASSY COVER P-REAR	SP-R4232,SECC,BLM 5113	1	S.A
T0159	BN96-01801A	ASSY PCB P-SMPS	SPD-50P5HD,100~240V	1	S.A
T0159	BN96-01856A	ASSY PCB P-SMPS	SPD-50P5HD(DC_DC),200Vin	1	S.A
T0044	BN96-01886A	ASSY PDP MODULE P	M1,SPD-42P5HD,D71A,V4,	1	S.A
T0073	BN96-02032A	ASSY PDP P-X MAIN BOARD	M1,SPD-42P5HD,D7	1	S.A
T0096	BN96-02033A	ASSY PDP P-Y MAIN BOARD	M1,SPD-42P5HD,D7	1	S.A
T0124	BN96-02034A	ASSY PDP P-Y UPPER BUFFER BOAR	M1,SPD-42	1	S.A
T0092	BN96-02216A	ASSY PDP P-Y BUFFER LOWER BOAR	M1,SPD-42	1	S.A
T0142	BN96-02035A	ASSY PDP P-LOGIC BOARD	M1,SPD-42P5HD,D71	1	S.A
T0939	BN96-02036A	ASSY PDP P-LOGIC E BUFF BOARD	M1,SPD-42P	1	S.A
T0940	BN96-02037A	ASSY PDP P-LOGIC F BUFF BOARD	M1,SPD-42P	1	S.A
M0145	BN96-02049C	ASSY BOARD P-FUNCTION	SP-R4232,CT5000-36	1	S.N.A
M0146	BN96-02050B	ASSY BOARD P-POWER & IR	SCHUBERT,CT5000-	1	S.N.A
M0018	BN97-00549A	ASSY MICOM	PS42S5H,D72A,49BV802A,T-PCN42	1	S.A

5-2 PS42S5HX/XEU Service Item

Yon can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA
CIS3	BN40-00042A	TUNER	TMQZ6-405A,PAL-CW,PAL Hyper.38.9MH	1	S.A
T0074	BN59-00468A	REMOCON	PS42S5S,TM76A,59*22*209,ZILOG MB	1	S.A
T0079	BN94-00683B	ASSY PCB MISC-MAIN	PS42S5HX/XEC,D72A,EU,	1	S.A
T0003	BN96-01773B	ASSY COVER P-FRONT	42P5,42S5,EXPORT	1	S.A
M0013	BN96-02140C	ASSY STAND P-BASE	42S5H,XEC,HIPS HB,SV01	1	S.A
M0013	BN96-01786C	ASSY COVER P-REAR	SP-R4232,SECC,BLM 5113	1	S.A
T0159	BN96-01801A	ASSY PCB P-SMPS	SPD-50P5HD,100~240V	1	S.A
T0159	BN96-01856A	ASSY PCB P-SMPS	SPD-50P5HD(DC_DC),200Vin	1	S.A
T0044	BN96-01886A	ASSY PDP MODULE P	M1,SPD-42P5HD,D71A,V4,	1	S.A
T0073	BN96-02032A	ASSY PDP P-X MAIN BOARD	M1,SPD-42P5HD,D7	1	S.A
T0096	BN96-02033A	ASSY PDP P-Y MAIN BOARD	M1,SPD-42P5HD,D7	1	S.A
T0124	BN96-02034A	ASSY PDP P-Y UPPER BUFFER BOAR	M1,SPD-42	1	S.A
T0092	BN96-02216A	ASSY PDP P-Y BUFFER LOWER BOAR	M1,SPD-42	1	S.A
T0142	BN96-02035A	ASSY PDP P-LOGIC BOARD	M1,SPD-42P5HD,D71	1	S.A
T0939	BN96-02036A	ASSY PDP P-LOGIC E BUFF BOARD	M1,SPD-42P	1	S.A
T0940	BN96-02037A	ASSY PDP P-LOGIC F BUFF BOARD	M1,SPD-42P	1	S.A
M0145	BN96-02049C	ASSY BOARD P-FUNCTION	SP-R4232,CT5000-36	1	S.N.A
M0146	BN96-02050B	ASSY BOARD P-POWER & IR	SCHUBERT,CT5000-	1	S.N.A
M0018	BN97-00549A	ASSY MICOM	PS42S5H,D72A,49BV802A,T-PCN42	1	S.A

5-3 PS42S5HX/XEH Service Item

Yon can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA
CIS3	BN40-00042A	TUNER	TMQZ6-405A,PAL-CW,PAL Hyper,38.9MH	1	S.A
T0074	BN59-00468A	REMOCON	PS42S5S,TM76A,59*22*209,ZILOG MB	1	S.A
T0079	BN94-00683B	ASSY PCB MISC-MAIN	PS42S5HX/XEC,D72A,EU,	1	S.A
T0003	BN96-01773B	ASSY COVER P-FRONT	42P5,42S5,EXPORT	1	S.A
M0013	BN96-02140C	ASSY STAND P-BASE	42S5H,XEC,HIPS HB,SV01	1	S.A
M0013	BN96-01786C	ASSY COVER P-REAR	SP-R4232,SECC,BLM 5113	1	S.A
T0159	BN96-01801A	ASSY PCB P-SMPS	SPD-50P5HD,100~240V	1	S.A
T0159	BN96-01856A	ASSY PCB P-SMPS	SPD-50P5HD(DC_DC),200Vin	1	S.A
T0044	BN96-01886A	ASSY PDP MODULE P	M1,SPD-42P5HD,D71A,V4,	1	S.A
T0073	BN96-02032A	ASSY PDP P-X MAIN BOARD	M1,SPD-42P5HD,D7	1	S.A
T0096	BN96-02033A	ASSY PDP P-Y MAIN BOARD	M1,SPD-42P5HD,D7	1	S.A
T0124	BN96-02034A	ASSY PDP P-Y UPPER BUFFER BOAR	M1,SPD-42	1	S.A
T0092	BN96-02216A	ASSY PDP P-Y BUFFER LOWER BOAR	M1,SPD-42	1	S.A
T0142	BN96-02035A	ASSY PDP P-LOGIC BOARD	M1,SPD-42P5HD,D71	1	S.A
T0939	BN96-02036A	ASSY PDP P-LOGIC E BUFF BOARD	M1,SPD-42P	1	S.A
T0940	BN96-02037A	ASSY PDP P-LOGIC F BUFF BOARD	M1,SPD-42P	1	S.A
M0145	BN96-02049C	ASSY BOARD P-FUNCTION	SP-R4232,CT5000-36	1	S.N.A
M0146	BN96-02050B	ASSY BOARD P-POWER & IR	SCHUBERT,CT5000-	1	S.N.A
M0018	BN97-00549A	ASSY MICOM	PS42S5H,D72A,49BV802A,T-PCN42	1	S.A

6. Troubleshooting

6-1 First Checklist for Troubleshooting

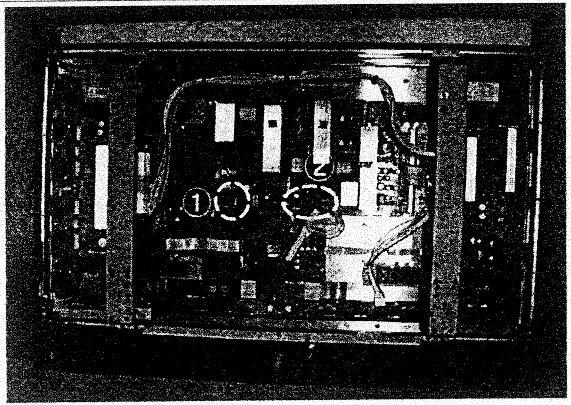
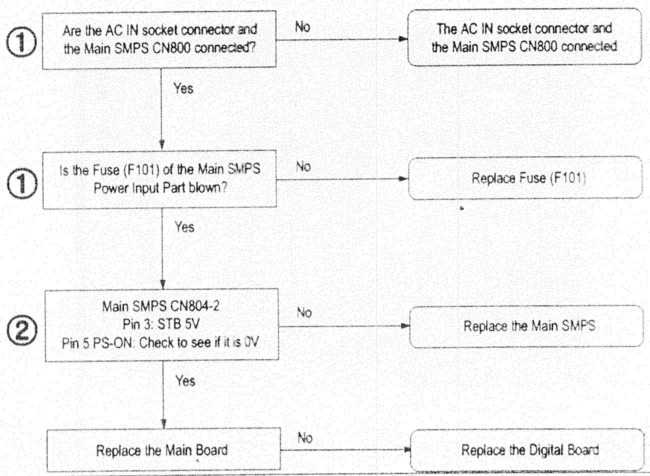
1. Check the various cable connections first.
    - Check to see if there is a burnt or damaged cable.
    - Check to see if there is a disconnected cable connection or a connection is too loose.
    - Check to see if the cables are connected according to the connection diagram.

2. Check the power input to the Video Board.

3. Check the voltage in and out between the SMPS ↔ Video Board, between the SMPS ↔ X, Y Drive Board, and between the Logic Boards.

6-2 Checkpoints by Error Mode

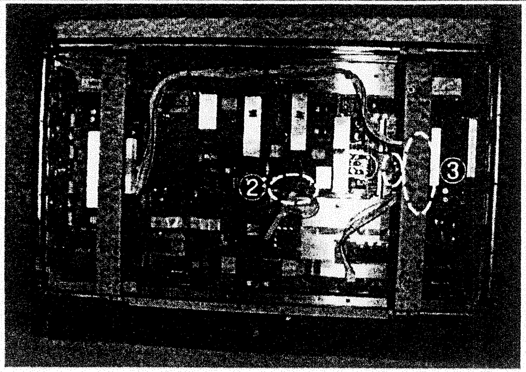
6-2-1 No Power

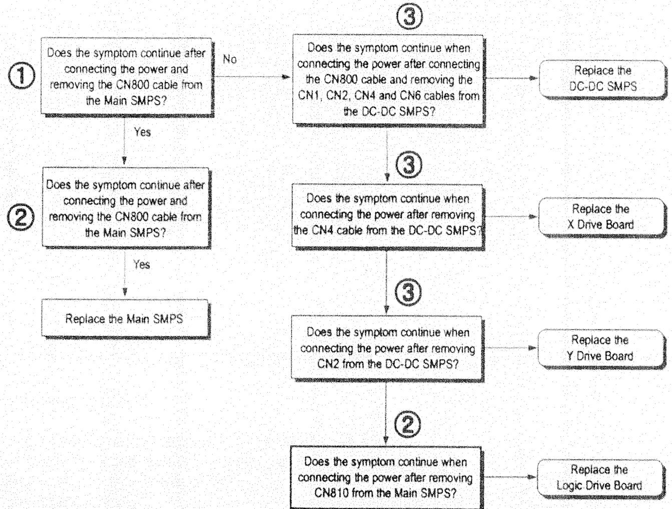
Symptom	- The LEDs on the front panel do not work when connecting the power cord. - The SMPS relay does not work when connecting the power cord. - The power of the unit seems to be out of order.
Major Checklist	The SMPS relay or the LEDs on the front panel do not work when connecting the power cord if the cables are improperly connected or the Video Board or SMPS is out of order. In this case, check the following: - Check the internal cable connection status inside the unit. - Check the fuses of each part. - Check the output voltage of SMPS. - Replace the Video Board.
Troubleshooting Procedures	  ① Are the AC IN socket connector and the Main SMPS CN800 connected? No The AC IN socket connector and the Main SMPS CN800 connected Yes ① Is the Fuse (F101) of the Main SMPS Power Input Part blown? No Replace Fuse (F101) Yes ② Main SMPS CN804-2 Pin 3: STB 5V Pin 5 PS-ON: Check to see if it is 0V No Replace the Main SMPS Yes Replace the Main Board No Replace the Digital Board

6-2-2 When the unit is repeatedly turned on and off

Symptom	- The SMPS relay is repeatedly turned on and off.
Major Checklist	In general, the SMPS relay repeatedly turns on and off by the protection function due to a defect on a board connected to the SMPS. - Disconnect all cables from the SMPS, operate the SMPS alone and check if the SMPS works properly and if each voltage output is correct. - If the symptom continues even when SMPS is operated alone, replace the SMPS. - If the symptom is not observed when operating the SMPS alone, find any defective ASSYs by connecting the cables one by one.

Troubleshooting Procedures



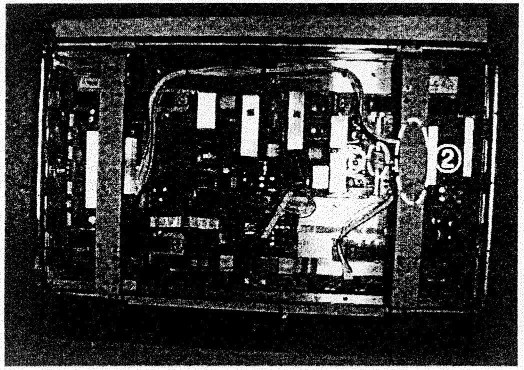

①
Does the symptom continue after connecting the power and removing the CN800 cable from the Main SMPS?
No
Yes
②
Does the symptom continue after connecting the power and removing the CN800 cable from the Main SMPS?
Yes
Replace the Main SMPS
③
Does the symptom continue when connecting the power after connecting the CN800 cable and removing the CN1, CN2, CN4 and CN6 cables from the DC-DC SMPS?
Replace the DC-DC SMPS
③
Does the symptom continue when connecting the power after removing the CN4 cable from the DC-DC SMPS?
Replace the X Drive Board
③
Does the symptom continue when connecting the power after removing CN2 from the DC-DC SMPS?
Replace the Y Drive Board
②
Does the symptom continue when connecting the power after removing CN810 from the Main SMPS?
Replace the Logic Drive Board

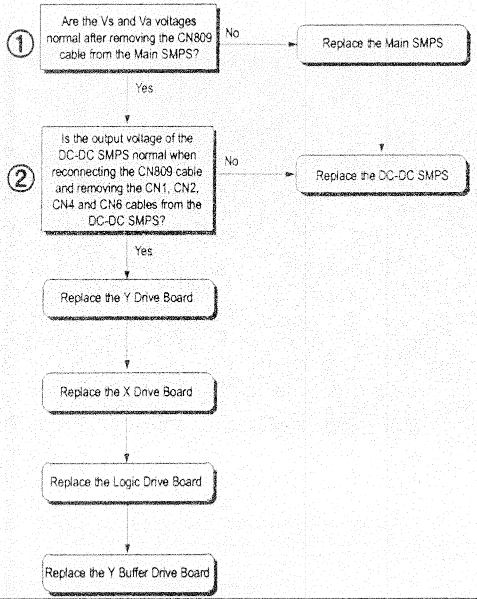
Caution When separating and connecting the cables such as CN809 of the Main SMPS, CN1, CN2, CN3, CN4 and CN5 of DC-DC SMPS, CN of the X Drive Board, and CN of the Y Drive Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after separating the power cord from the unit.

6-2-3 No Picture (When audio is normal)

Symptom	- Audio is normal but no picture is displayed on the screen.
Major Checklist	- This may happen when the Video Board is normal but the X, Y Drive Board, Logic Board, or Y Buffer Board is out of order. - The output voltage of the Main SMPS or the DC-DC SMPS is out of order. - This may happen when the LVDS cable connecting the Main Board and the Logic Board is disconnected.

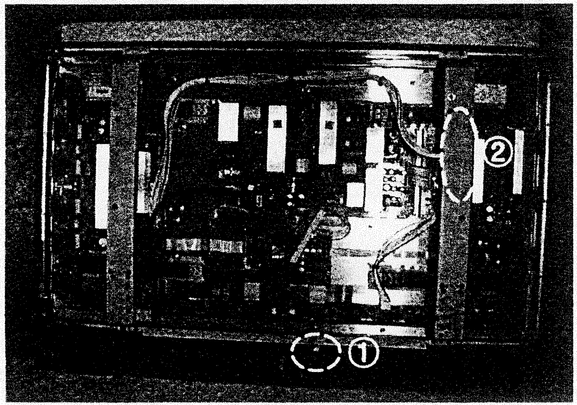
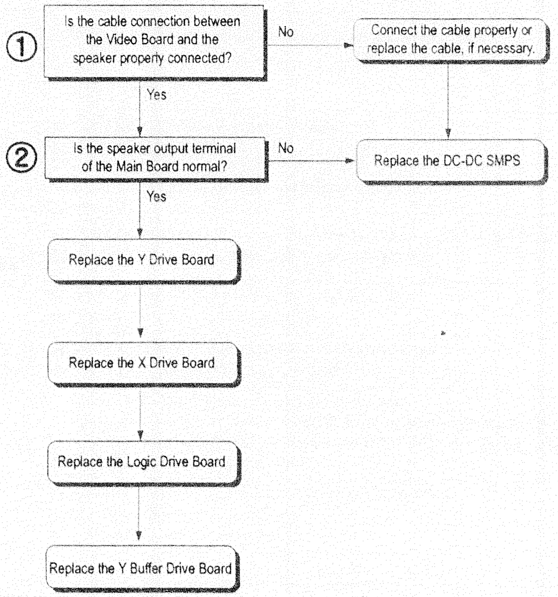
Troubleshooting Procedures




①
Are the Vs and Va voltages normal after removing the CN809 cable from the Main SMPS?
No
Replace the Main SMPS
Yes
②
Is the output voltage of the DC-DC SMPS normal when reconnecting the CN809 cable and removing the CN1, CN2, CN4 and CN6 cables from the DC-DC SMPS?
No
Replace the DC-DC SMPS
Yes
Replace the Y Drive Board
Replace the X Drive Board
Replace the Logic Drive Board
Replace the Y Buffer Drive Board

Caution When separating and connecting the cables such as CN809 of the Main SMPS, CN1, CN2, CN3, CN4 and CN5 of the DC-DC SMPS, CN of the X Drive Board, and CN of the Y Drive Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after separating the power cord from the unit.

6-2-4 No Sound

Symptom	- Video is normal but there is no sound.
Major Checklist	- When the speaker connectors are disconnected or damaged. - When the sound processing part of the Video Board is out of order. - Speaker defect. - When setting the volume to 0 (Nonsense).
Troubleshooting Procedures	  ① Is the cable connection between the Video Board and the speaker properly connected? No Connect the cable properly or replace the cable, if necessary. Yes ② Is the speaker output terminal of the Main Board normal? No Replace the DC-DC SMPS Yes Replace the Y Drive Board Replace the X Drive Board Replace the Logic Drive Board Replace the Y Buffer Drive Board

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6-3 Trouble-shooting with New Features

6-3-1 Installation & Connection

Problem	Solution
The unit does not turn on when I press the Power button on the remote control.	■ Check to see if the power cord is connected. ■ Confirm that the Device Selection of the remote control is set to TV.
A normal broadcast is not displayed.	Check to see if the antenna cable has been properly connected.
Cable broadcasting does not work.	Install a satellite antenna (Parabola) and connect it to the TV.
Satellite broadcasting does not work.	Subscribe to a local cable broadcasting firm and get support.

6-3-2 Menu & Remote Control

Problem	Solution
The remote control does not work.	■ Press the Select Device button to select the TV or external device. ■ Replace the battery of the remote control with a new one. ■ Insert the battery making sure the polarity (+,-) is correct. ■ Check if the angle or the distance is sufficient, or if there is any interference between the product and the remote control. ■ Make sure the user has pressed the correct button. ■ To avoid direct sunlight to the receiving panel of the TV, remove any indoor lighting or change the location of the TV. ■ Check if the power switch at the back left of the TV is turned on.
Cannot change the channel with the remote control.	■ Press the Select Device button to select the TV. ■ Change the channel using the remote control of the cable or satellite receiver.
Cannot select an A/V channel.	Press the TV/AV button and check if the AV item is grayed out. When the AV item is grayed out, you cannot select an A/V channel. Check if the connector is properly connected.
Cannot select a menu.	Check if the menu is grayed out. If a menu is grayed out, it cannot be selected.

6-3-3 Screen

Problem	Solution
The screen is black and there is no sound.	■ Check if the power cord is properly connected. ■ Turn on the power. ■ Select an AV channel that corresponds to the external device.
Only the screen is blank/it is dark or too bright.	■ Adjust the screen brightness. ■ If the screen is too dark, check to see if Power Saving Mode is set to "Super Power Saving". Although Super Power Saving Mode consumes less power than Standard Mode, Super Power Saving Mode may have the screen dark.
The screen is blue/the external channel is not displayed.	■ Check if the connector is properly installed. ■ Select an AV channel that corresponds to the external device.
The screen overlaps (double/triple).	■ Check if the antenna is properly installed. ■ Adjust the position, angle or direction of the antenna.
The screen is snowy or unclear. The picture quality gets worse when it is windy	■ Check if the antenna has been bent or moved by the wind. ■ Check the antenna for its lifetime. (Normally 3 - 5 years, 1-2 years near the coast)
Dotted or semi-dotted lines are displayed on the screen.	Install the antenna as far away from the road as possible.
The screen is black and white.	■ Adjust the color density. ■ Check if the connector is properly installed.
The colors of the screen are odd/strange.	Adjust the color tones.
Unusual lines appear on the screen.	Keep the antenna away from the power cord or connectors if possible.
Unusual lines appear on the screen when watching or	Keep the video player as far away from the TV as possible.
There is no picture on the screen when I have connected to another device through the Monitor OUT port.	A video signal is only output through the Monitor OUT port when the current input mode is TV (analog broadcast), External In or S-VIDEO. Check that the current mode is one of the above.
Black or red spots appear on the screen.	A PDP TV uses a PDP panel consisting of 123million (SD Grade) ~ 315million (HD Grade) pixels. Although a PDP panel is a product that requires high technologies to integrate a few million pixels, a bright or dark pixel may exist on the panel, this does not affect the performance of the product.
A boundary appears on the screen.	■ Displaying a still picture on the screen may permanently damage the PDP panel. ■ A boundary may appear due to the difference in the transparency of the panel when watching the picture in the 4:3 aspect ratio for a long time and the picture in the left, right and center screens is a still image. ■ A boundary may appear when watching a still picture from a DVD player or a video game console on the screen for a long time.
An after-image remains on the screen.	Due to the nature of PDP TVs, partial after-images may appear if a still picture is displayed for a certain period of time after connecting a video game console or a computer. This is caused by brightness deterioration due to the storage effect of the panel, and to prevent this from happening, we recommend you reduce 'brightness' and 'contrast'.

6-3-4 Sound

Problem	Solution
There is no sound.	■ Increase the volume. ■ Press the Mute button. ■ There may be no sound when the internal amplifier setting is set to Off. Set the Internal Amplifier Setting to On. ■ If you have connected the DVI signal to HDMI IN using the DVI ↔ HDMI converter cable, you have to connect an additional audio (L/R) cable to the DVI Audio IN port to hear audio.
The sound is very low.	■ Increase the volume. ■ Set the auto volume control to ON.
There is a lot of noise.	Keep the antenna away from the power cord or connectors if possible.
The selected language does not appear.	Press the Multiplex button to select the TV.
A "snapping" sound is emitted from the product.	This sound may be heard when the product chassis shrinks or expands due to the surrounding humidity or temperature change. This sound does not indicate a problem and there is no need to worry.
There is noise from the product.	A PDP TV may produce sound at a certain level when operating the fan to cool its internal temperature. In addition, since the high-speed switching circuit and the high current may produce noise depending on the screen brightness change, a PDP TV produces more noise than a conventional CRT TV.

6-3-5 Channel

Problem	Solution
There are no channels available.	■ Check if the antenna is properly installed. ■ Press the Auto Channel button to store channels.
Some channels are not available.	■ Adjust the position, angle or direction of the antenna. ■ Use the number keys to select a specific channel and press Store/Clear to memorize it.
Only the UHF (14-69) channels are not available.	Check if the antenna is able to receive UHF signals

6-3-6 PC

Problem	Solution
I cannot change the resolution.	Update the driver of the graphics card with the latest version.
Letters are not properly displayed.	Set the resolution lower than the current one. (e.g. 1024× 768 → 640× 480)

6-3-7 Others

Problem	Solution
The product is hot.	Since a PDP TV displays a picture on the screen by discharging plasma, operating for a long time may introduce heat onto the panel. The internal heat of the panel is sent to the vent on the upper part of the product, and users must take care not to touch the hot air from the vent. The heat from the RDP TV does not indicate a defect or problem.

6-4 Troubleshooting Procedures by ASS'Y

No	Name	Code No	Description	Major Symptoms
1	ASSY BOARD P-POWER	BN96-02050A	Power Button Board	The remote control does not work properly, LED does not work properly, function key mode does not work properly.
2	ASSY PCB MISC-MAIN	BN94-00662A	Main Board	No power. TV screen is broken(Check tuner CVBS). No power. Abnormal screen for each input source, Sound trouble
3	ASSY PCB P-SMPS	BN96-01856A	SMPS Board	No power, Blank screen, the Relay repeats On and Off.
4	ASSY PDP P-X MAIN BOARD	BN96-02038A	X Drive Board	Blank screen
5	ASSY PDP P-Y MAIN BOARD	BN96-02039A	Y Drive Board	Blank screen
6	ASSY PDP P-Y BUFF UPPER BOARD	BN96-02040A	Y Buffer Upper Board	Upper screen is blank
7	ASSY PDP P-Y BUFF LOWER BOARD	BN96-02041A	Y Buffer Lower Board	Lower screen is blank
8	ASSY PDP P-LOGIC BOARD	BN96-02042A	Logic Board	Blank screen, Screen noise
9	ASSY PDP P-ADDRESS E BUFF BOARD	BN96-02043A	Address E Buffer Board	Corresponding Buffer Board block screen is blank.
10	ASSY PDP P-ADDRESS F BUFF BOARD	BN96-02044A	Address F Buffer Board	Corresponding Buffer Board block screen is blank.
11	ASSY BOARD P-FUNCTION	BN96-02049A	Function Key Board	The side function key does not work properly
12	ASSY MISC P-INLET	BN96-02112A	Power	The remote control does not work properly, LED does not work properly, function key mode does not work properly.

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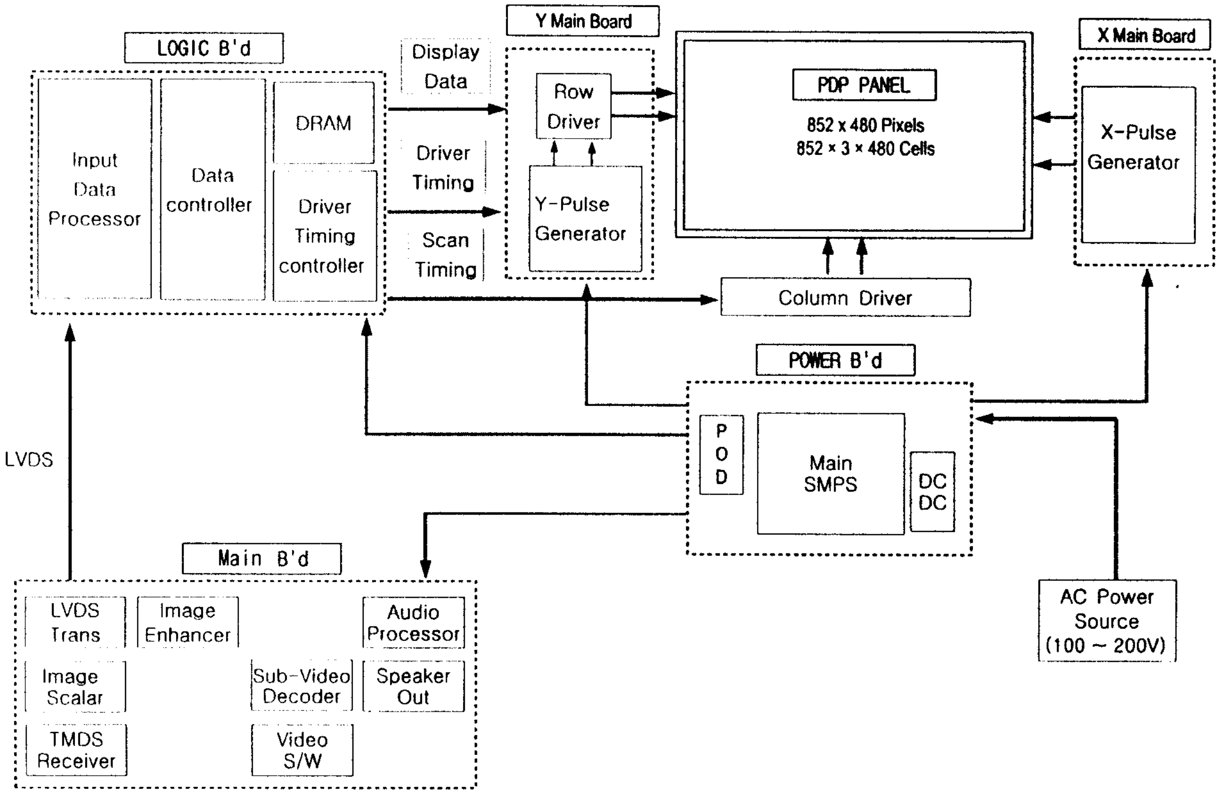
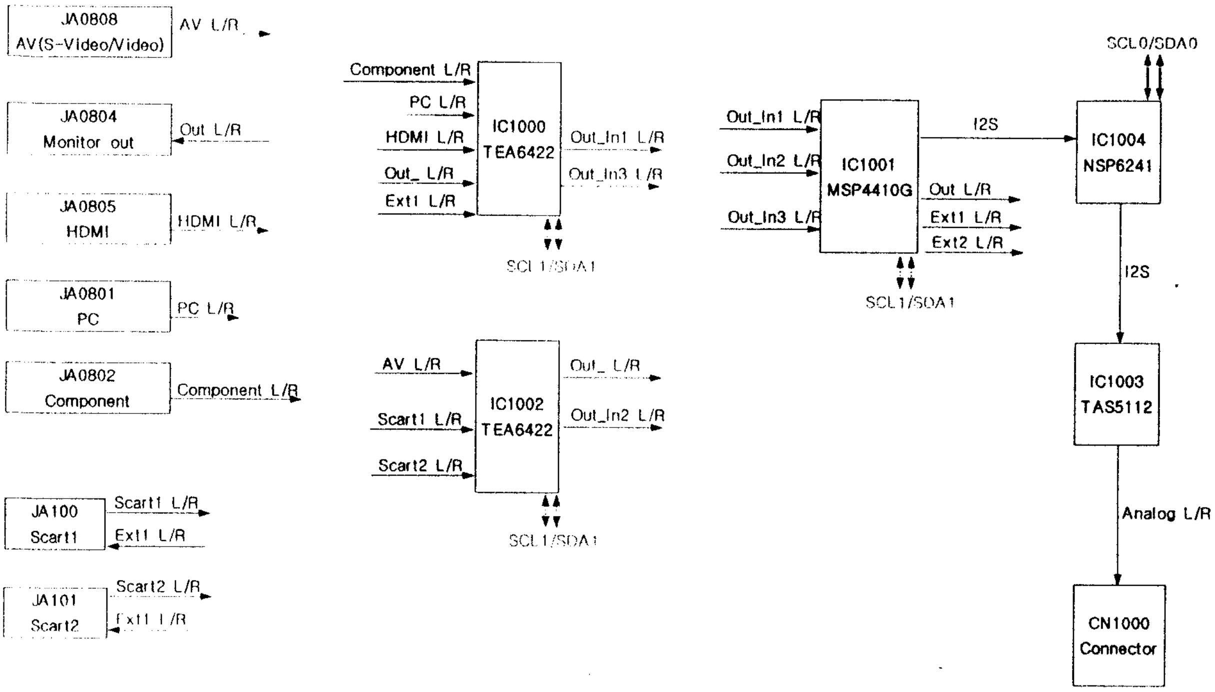
7. Block Diagram

7-1 Overall Block Diagram

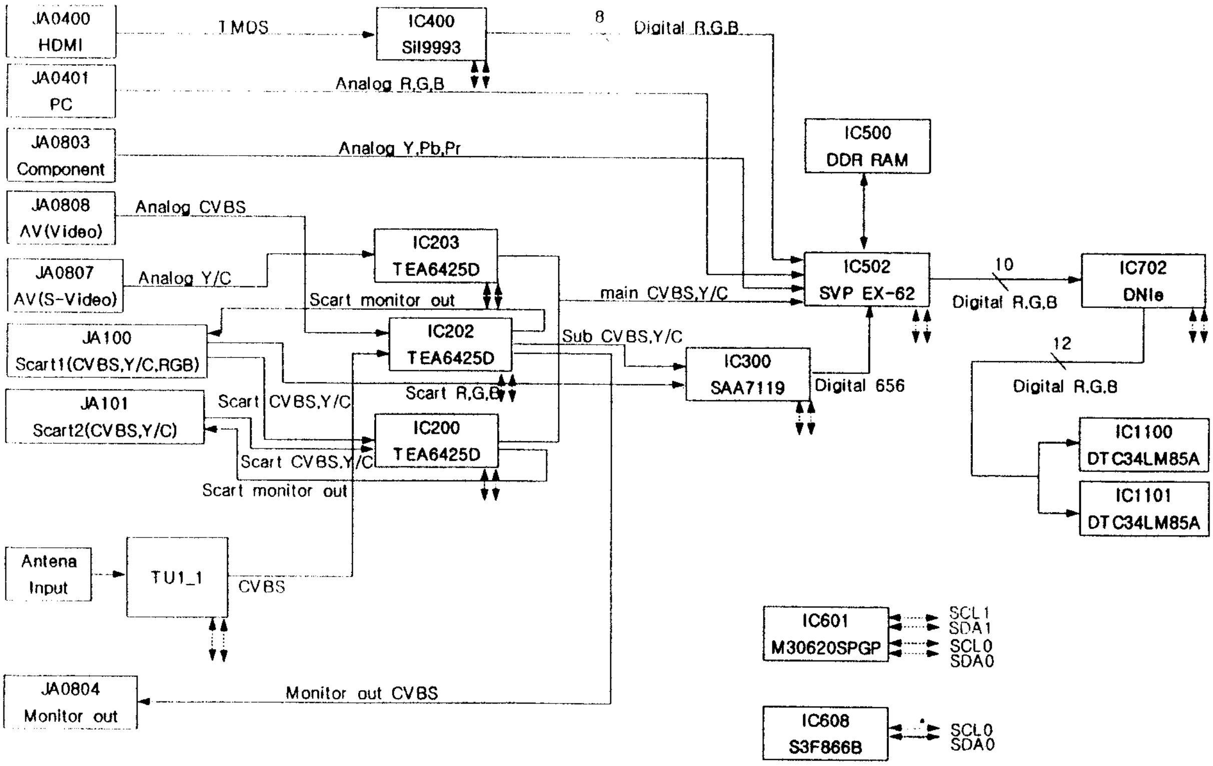

LOGIC B'd
Input Data Processor
Data controller
DRAM
Driver Timing controller
Display Data
Driver Timing
Scan Timing
Y Main Board
Row Driver
Y-Pulse Generator
PDP PANEL
852 x 480 Pixels
852 × 3 × 480 Cells
X Main Board
X-Pulse Generator
Column Driver
POWER B'd
P O D
Main SMPS
DC DC
AC Power Source (100 ~ 200V)
LVDS
Main B'd
LVDS Trans
Image Enhancer
Audio Processor
Image Scalar
Sub-Video Decoder
Speaker Out
TMDS Receiver
Video S/W

7-2 Partial Block Diagram

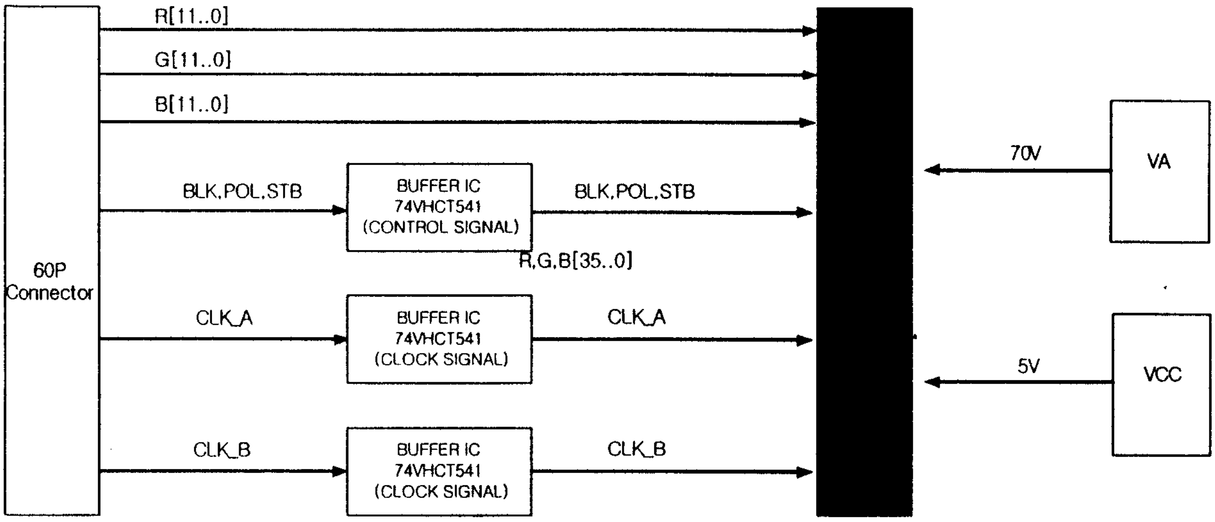
7-2-1 Audio Signal Block Diagram


JA0808
AV(S-Video/Video)
AV L/R
JA0804
Monitor out
Out L/R
JA0805
HDMI
HDMI L/R
JA0801
PC
PC L/R
JA0802
Component
Component L/R
JA100
Scart1
Scart1 L/R
Ext1 L/R
JA101
Scart2
Scart2 L/R
Ext1 L/R
Component L/R
PC L/R
HDMI L/R
Out_ L/R
Ext1 L/R
IC1000
TEA6422
Out_In1 L/R
Out_In3 L/R
SCL1/SDA1
AV L/R
Scart1 L/R
Scart2 L/R
IC1002
TEA6422
Out_ L/R
Out_In2 L/R
SCL1/SDA1
Out_In1 L/R
Out_In2 L/R
Out_In3 L/R
IC1001
MSP4410G
Out L/R
Ext1 L/R
Ext2 L/R
SCL1/SDA1
I2S
SCL0/SDA0
IC1004
NSP6241
I2S
IC1003
TAS5112
Analog L/R
CN1000
Connector

7-2-2 Video Signal Block Diagram


JA0400
HDMI
TMDS
IC400
Sil9993
8
Digital R.G.B
JA0401
PC
Analog R.G.B
JA0803
Component
Analog Y,Pb,Pr
IC500
DDR RAM
JA0808
AV(Video)
Analog CVBS
JA0807
AV(S-Video)
Analog Y/C
IC203
TEA6425D
Scart monitor out
main CVBS,Y/C
IC502
SVP EX-62
10
Digital R.G.B
IC702
DNIe
JA100
Scart1(CVBS,Y/C,RGB)
IC202
TEA6425D
Sub CVBS,Y/C
12
JA101
Scart2(CVBS,Y/C)
Scart CVBS,Y/C
Scart R,G,B
IC300
SAA7119
Digital 656
Digital R.G.B
IC200
TEA6425D
Scart CVBS,Y/C
Scart monitor out
IC1100
DTC34LM85A
IC1101
DTC34LM85A
Antena
Input
TU1_1
CVBS
IC601
M30620SPGP
SCL1
SDA1
SCL0
SDA0
JA0804
Monitor out
Monitor out CVBS
IC608
S3F866B
SCL0
SDA0

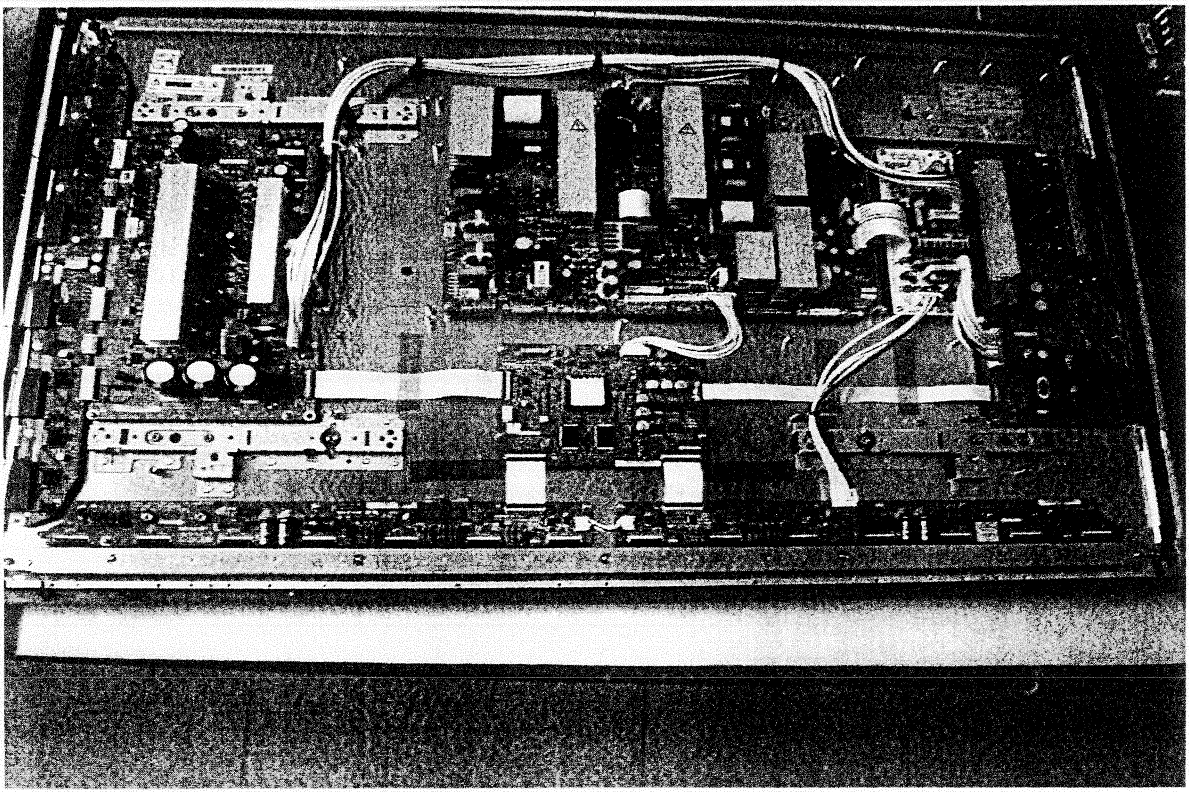
7-2-3 Logic Board Block Diagram


R[11..0]
G[11..0]
B[11..0]
BLK,POL,STB
BUFFER IC
74VHCT541
(CONTROL SIGNAL)
BLK,POL,STB
R,G,B[35..0]
60P
Connector
CLK_A
BUFFER IC
74VHCT541
(CLOCK SIGNAL)
CLK_A
CLK_B
BUFFER IC
74VHCT541
(CLOCK SIGNAL)
CLK_B
70V
VA
5V
VCC

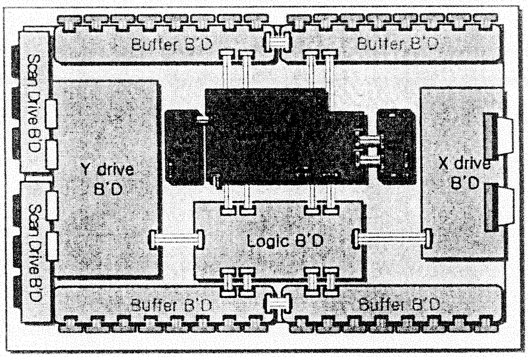
MEMO

8. Wiring Diagram

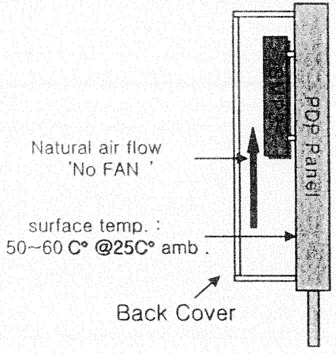
8-1 Overall Wiring



PDP panel back_side view


Buffer B'D
Buffer B'D
Scan Drive B'D
Y drive B'D
X drive B'D
Logic B'D
Scan Drive B'D
Buffer B'D
Buffer B'D

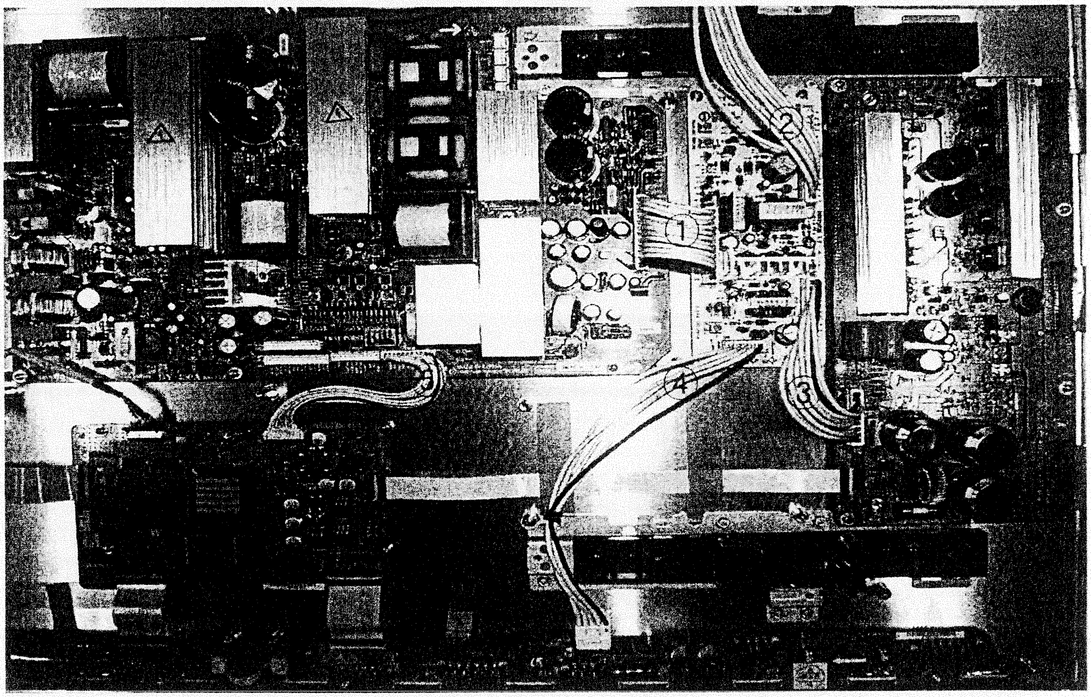
PDP panel side view


Natural air flow
'No FAN '
surface temp. :
50~60 C° @25C° amb .
Back Cover
PDP Panel

< Connector Location and Wire harness Connection >

8-2 Partial Wiring

8-2-1 PDP Module ↔ SMPS Wiring



①
CN809(Main SMPS)
↔
CN3(DC-DC SMPS)

Pin No	Signal
1 ■	D5.3V
2	Vg
3	RTN
4	RTN
5	RTN
6	RTN
7	RTN
8	Va
9	Va
10	N/C
11	Vs
12	Vs

②
CN2
(DC-DC SMPS)
↔
CN5007(Y B'D)

Pin No	Signal
1 ■	Vs
2	Vs
3	RTN
4	RTN
5	Vset
6	RTN
7	Vscan
8	RTN
9	Vg
10	D5.3V

③
CN4
(DC-DC SMPS)
↔ CN4001(X B'D)

Pin No	Signal
1 ■	D5.3V
2	Vg
3	RTN
4	RTN
5	Ve
6	RTN
7	RTN
8	Vs
9	Vs

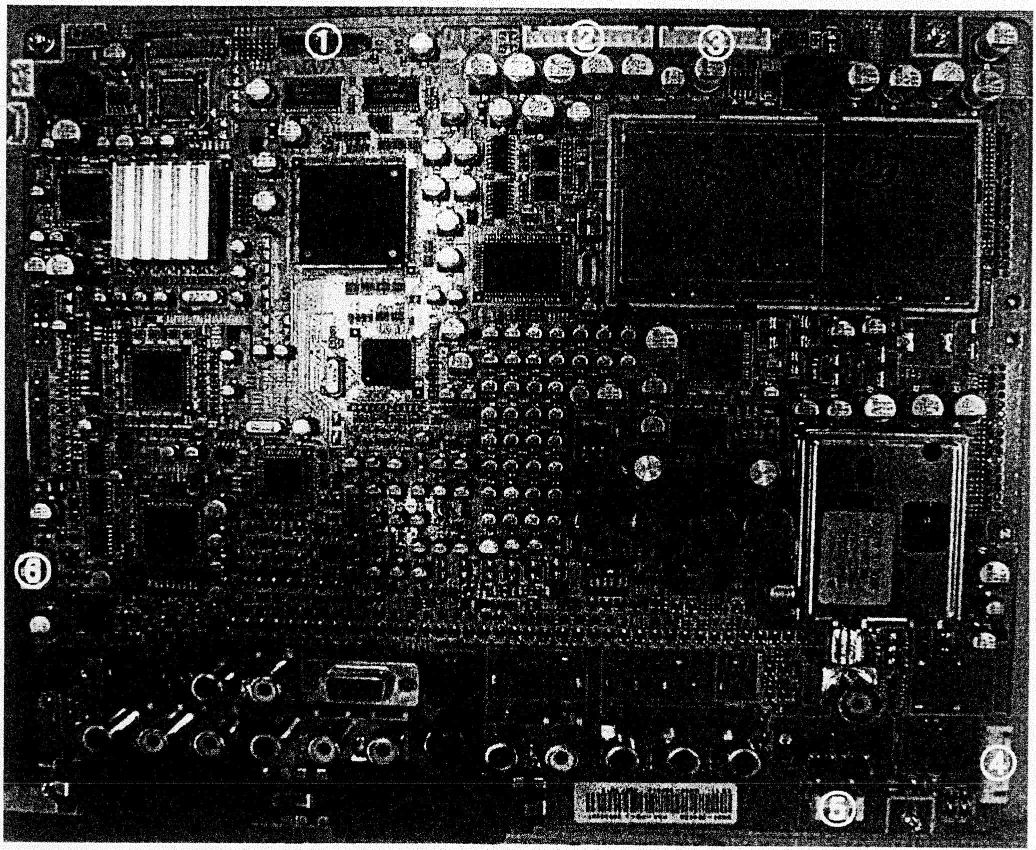
④
CN6(DC-DC SMPS)
↔ CN2509(E-Buffer))

Pin No	Signal
1■	RTN
2	N.C
3	D5.3V
4	N.C
5	Va

⑤
CN810(Main SMPS)
↔
CN2013(Logic B'D)

Pin No	Signal
1 ■	STD_5V
2	VS_ON
3	N/C
4	PS_ON
5	RTN
6	D5.3V
7	RTN
8	RTN
9	D5.3V
10	D5.3V

8-2-2 Main Board ↔ SMPS, Side A/V, Sub Tuner Board, Power Button, Speaker Out Wiring



① CN804-1(MAIN SMPS) ↔ CN0902(Main Board)					
Pin No	Signal	Pin No	Signal	Pin No	Signal
1		12	TXOUT3+	23	TXOUT1B-
2	GND	13	TXOUT3-	24	TXOUT1+
3	PW_SDA0	14	TXCLKOUTB+	25	TXOUT1-
4	GND	15	TXCLKOUTB-	26	GND
5	PW_SCL0	16	TXCLKOUT+	27	GND
6	GND	17	TXCLKOUT-	28	TXOUT0+
7		18	GND	29	TXOUT0-
8	TXOUT0B+	19	GND	30	GND
9	TXOUT0B-	20	TXCLKOUT2+	31	GND
10	I2C_READY	21	TXCLKOUT-	32	GND
11	GND	22	TXOUT1B+	33	GND

② CN804-1(MAIN SMPS) ↔ CN0902(MAIN Board)	
Pin No	Signal
1 ■	5.3V
2	RTN
3	Vcs
4	Vca
5	RTN
6	RTN
7	12V
8	PS_ON
9	RTN
10	STD_5V
11	FAN_ON
12	FAN_D

③ CN803(MAIN B'D) ↔ CN0900 (MAIN Board)	
Pin No	Signal
1 ■	RTN
2	Vt
3	RTN_amp
4	RTN_amp
5	18Vamp
6	18Vamp
7	RTN
8	12V
9	RTN
10	6.5V

④
CN0901(MAIN Board)
↔ CN001(Power Button)

Pin No	Signal
1■	GND
2	LED
3	ST5V
4	GND
5	FRONT_KEY2
6	PW_SDA3
7	PW_SCL3
8	FRONT_IR

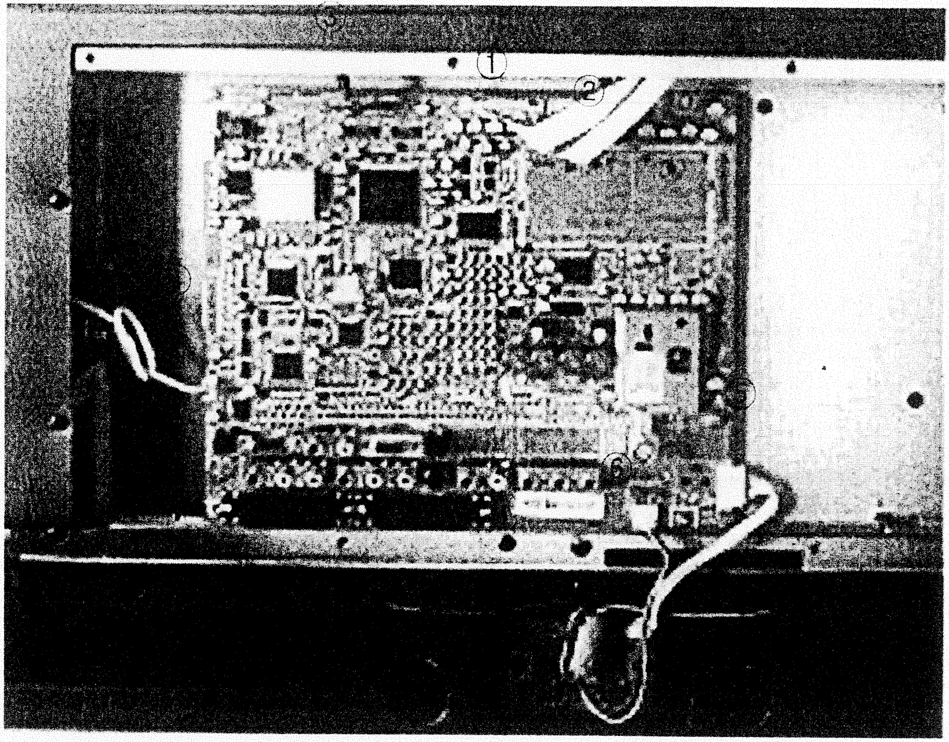
⑤
CN1000(MAIN Board)
↔
Speaker Out

Pin No	Signal
1	SPK_R+
2	SPK_R-
3	SPK_L+
4	SPK_L-

⑥
CN0903(MAIN Board)
↔ CN1(Function Key Board)

Pin No	Signal
1■	FRONT_KEY1
2	FRONT_KEY2
3	GND

8-2-3 Main Board ¡ê SMPS, Power Button, Speaker, Function Board Wiring



①

P104(DIGITAL B'D) ↔ CN103(MAIN B'D)

Pin No	Signal	Pin No	Signal	Pin No	Signal
1	SCLK	12	GND	23	FRONT_KEY1
2	945_IEC958	13	GND	24	POWER_CTR
3	LRCLK	14	S5V	25	FRONT_KEY2
4	ACLK	15	CH_6.5V	26	FRONT_IR
5	945_SDATA0	16	CH_33V	27	PW_RESET
6	I2S_5333	17	9V_A	28	UARTSEL_945
7	945_MCLK	18	GND	29	D3.3V_M
8	I2S_HDMI	19	GND	30	N.C
9	D5V	20	LED_RED	31	GND
10	GND	21	LED_GRN	32	RDY_PLUG
11	D5V	22	S_MUTE		

③

P106(DIGITAL B'D) ↔ CN106(MAIN B'D)

Pin No	Signal	Pin No	Signal
1	GND	13	N.C
2	GND	14	945_SDA1
3	945_TXD1	15	N.C
4	N.C	16	N.C
5	945_RXD1	17	GND
6	GND	18	LNA_ON1
7	945_TXD0	19	CAPTION
8	MAIN_SYNC_DET	20	SUB_AFT
9	945_RXD0	21	GND
10	SUB_SYNC_DET	22	RF_SW1
11	GND	23	945_CVBS
12	945_SCL1	24	GND

②
P105(DIGITAL B'D) ↔ CN104(MAIN B'D)

Pin No	Signal	Pin No	Signal	Pin No	Signal
1	GND	12	TXOUT3-	23	645AD[6]
2	TXOUT0-	13	TXOUT3+	24	645AD[7]
3	TXOUT0+	14	GND	25	GND
4	TXOUT1-	15	GND	26	656CLK
5	TXOUT1+	16	645AD[0]	27	N.C
6	GND	17	645AD[1]	28	N.C
7	TXOUT2-	18	645AD[2]	29	GND
8	TXOUT2+	19	645AD[3]	30	N.C
9	TXCLKOUT-	20	GND	31	GND
10	TXCLKOUT+	21	645AD[4]		
11	GND	22	645AD[5]		

④
P601(DIGITAL B'D)
↔ FUNCTION KEY B'D

Pin No	Signal
1	FRONT_KEY1
2	FRONT_KEY2
3	GND

⑤
P701(DIGITAL B'D)
↔ CN107(MAIN B'D)

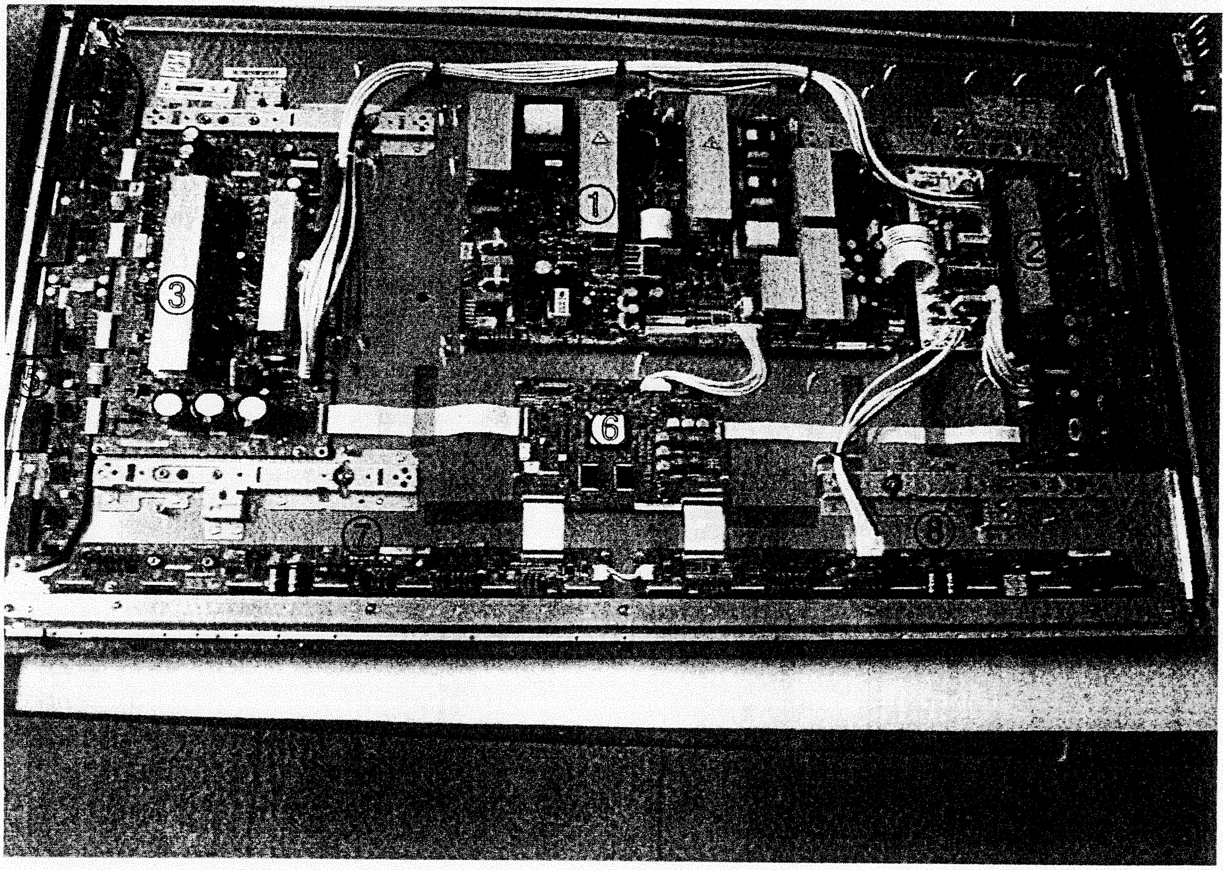
Pin No	Signal
1	MAIN_CVBS
2	GND
3	N.C
4	MAIN_SIF
5	GND

⑥
P103(MAIN B'D)
↔ JO802(POD SMPS B'D)

Pin No	Signal
1	N.C
2	+33V
3	GND
4	+12V
5	GND
6	+12V
7	GND
8	+6.5V
9	GND
10	+5.3V
11	GND
12	+5.3V

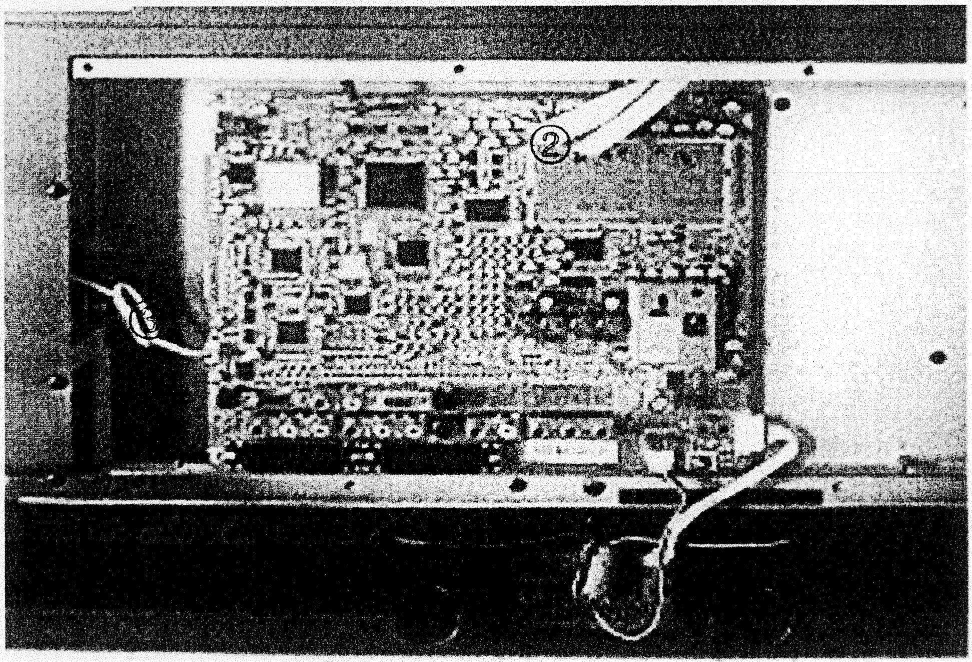
9. PCB Diagram

9-1 PDP Module, SMPS

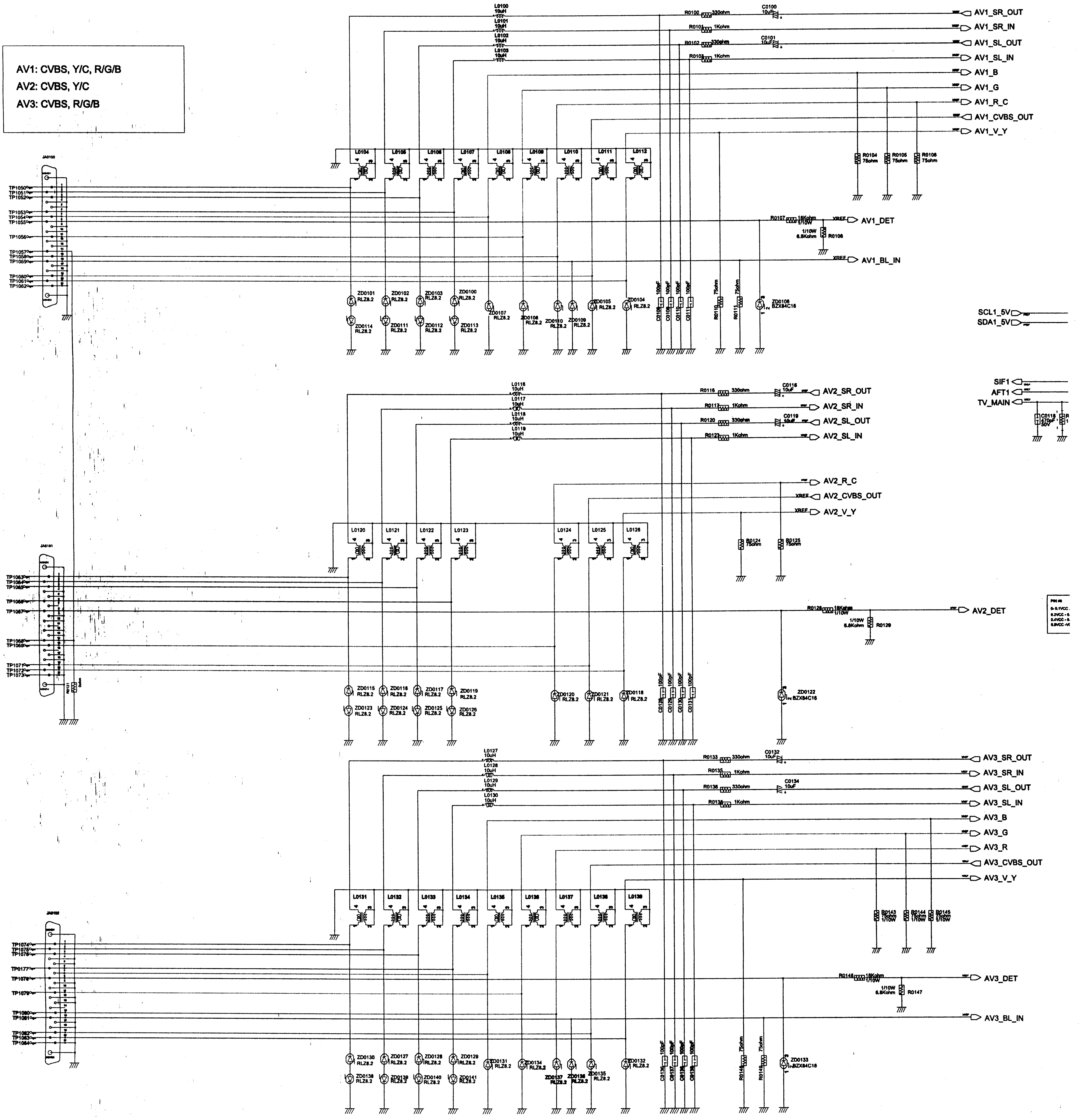


No	Name	Code No	Description
①	ASSY PCB P-SMPS	BN96-01856A	SMPS Board
②	ASSY PDP P-X MAIN BOARD	BN96-02038A	X Drive Board
③	ASSY PDP P-Y MAIN BOARD	BN96-02039A	Y Drive Board
④	ASSY PDP P-Y BUFF UPPER BOARD	BN96-02040A	Y Buffer Upper Board
⑤	ASSY PDP P-Y BUFF LOWER BOARD	BN96-02041A	Y Buffer Lower Board
⑥	ASSY PDP P-LOGIC BOARD	BN96-02042A	Logic Board
⑦	ASSY PDP P-ADDRESS E BUFF BOARD	BN96-02043A	Address E Buffer Board
⑧	ASSY PDP P-ADDRESS F BUFF BOARD	BN96-02044A	Address F Buffer Board

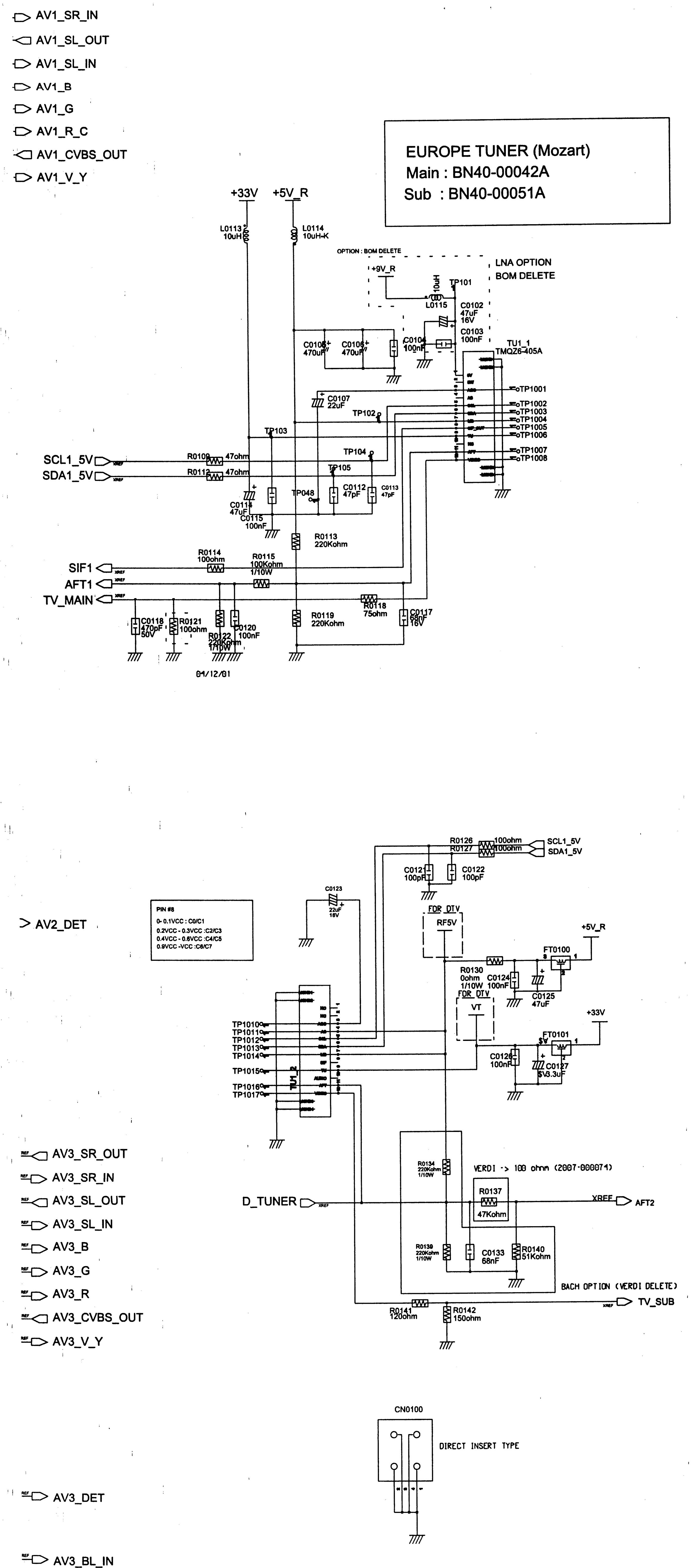
9-2 Video Board, Function Key Borad, Power Button Board



No	Name	Code No	Description
①	ASSY BOARD P-POWER & IR	BN96-02050A	Power Button Board
②	ASSY PCB MISC-MAIN	BN94-00662A	Main Board
③	ASSY BOARD P-FUNCTION	BN96-02049A	Function Key Board


AV1_SR_OUT
AV1_SR_IN
AV1_SL_OUT
AV1_SL_IN
AV1_B
AV1_G
AV1_R_C
AV1_CVBS_OUT
AV1_V_Y
AV1_DET
AV1_BL_IN
SCL1_5V
SDA1_5V
SIF1
AFT1
TV_MAIN
AV2_SR_OUT
AV2_SR_IN
AV2_SL_OUT
AV2_SL_IN
AV2_R_C
AV2_CVBS_OUT
AV2_V_Y
AV2_DET
AV3_SR_OUT
AV3_SR_IN
AV3_SL_OUT
AV3_SL_IN
AV3_B
AV3_G
AV3_R
AV3_CVBS_OUT
AV3_V_Y
AV3_DET
AV3_BL_IN
R0100 330ohm
R0101 1Kohm
R0102 330ohm
R0103 1Kohm
C0100 10uF
C0101 10uF
L0100 10uH
L0101 10uH
L0102 10uH
L0103 10uH
R0104 75ohm
R0105 75ohm
R0106 75ohm
R0107 18Kohm 1/10W
R0108 1/10W 6.8Kohm
ZD0106 BZX84C16
R0116 330ohm
R0117 1Kohm
R0120 330ohm
R0123 1Kohm
C0116 10uF
C0119 10uF
R0124 75ohm
R0125 75ohm
R0128 18Kohm
R0129 1/10W 6.8Kohm
ZD0122 BZX84C16
R0133 330ohm
R0135 1Kohm
R0136 330ohm
R0138 1Kohm
C0132 10uF
C0134 10uF
R0143 75ohm 1/10W
R0144 75ohm 1/10W
R0145 75ohm 1/10W
R0146 18Kohm 1/10W
R0147 1/10W 6.8Kohm
ZD0133 BZX84C16
RLZ8.2
100pF
XREF
JA0100
JA0101
JA0102

AV1: CVBS, Y/C, R/G/B
AV2: CVBS, Y/C
AV3: CVBS, R/G/B



EUROPE TUNER (Mozart)
Main : BN40-00042A
Sub : BN40-00051A

PIN #8
0- 0.1VCC : C0/C1
0.2VCC - 0.3VCC :C2/C3
0.4VCC - 0.6VCC :C4/C5
0.9VCC -VCC :C6/C7

AV1_SR_IN
AV1_SL_OUT
AV1_SL_IN
AV1_B
AV1_G
AV1_R_C
AV1_CVBS_OUT
AV1_V_Y
+33V
+5V_R
L0113 10uH
L0114 10uH-K
OPTION : BOM DELETE
LNA OPTION
BOM DELETE
+9V_R
10uH
L0115
TP101
C0102 47uF 16V
C0103 100nF
C0104 100nF
C0105 470uF
C0106 470uF
TU1_1
TMQZ6-405A
C0107 22uF
TP102
TP103
TP104
TP105
TP048
TP1001
TP1002
TP1003
TP1004
TP1005
TP1006
TP1007
TP1008
SCL1_5V
SDA1_5V
R0109 47ohm
R0112 47ohm
C0114 47uF
C0115 100nF
C0112 47pF
C0113 47pF
R0113 220Kohm
SIF1
AFT1
TV_MAIN
R0114 100ohm
R0115 100Kohm 1/10W
R0118 75ohm
C0117 68nF 16V
R0119 220Kohm
C0118 470pF 50V
R0121 100ohm
R0122 220Kohm 1/10W
C0120 100nF
04/12/01
R0126 100ohm
R0127 100ohm
SCL1_5V
SDA1_5V
C0121 100pF
C0122 100pF
C0123 22uF 16V
AV2_DET
FOR DTV
RF5V
+5V_R
FT0100
R0130 0ohm 1/10W
C0124 100nF
C0125 47uF
FOR DTV
VT
+33V
FT0101
C0126 100nF
C0127 3.3uF
TP1010
TP1011
TP1012
TP1013
TP1014
TP1015
TP1016
TP1017
TU1_2
AV3_SR_OUT
AV3_SR_IN
AV3_SL_OUT
AV3_SL_IN
AV3_B
AV3_G
AV3_R
AV3_CVBS_OUT
AV3_V_Y
D_TUNER
R0134 220Kohm 1/10W
VERDI -> 100 ohm (2007-000074)
R0137 47Kohm
XREF
AFT2
R0139 220Kohm 1/10W
C0133 68nF
R0140 51Kohm
BACH OPTION (VERDI DELETE)
R0141 120ohm
R0142 150ohm
TV_SUB
CN0100
DIRECT INSERT TYPE
AV3_DET
AV3_BL_IN

10. Schematic Diagram

10-1 MAIN

10-1-1 Scart Jack

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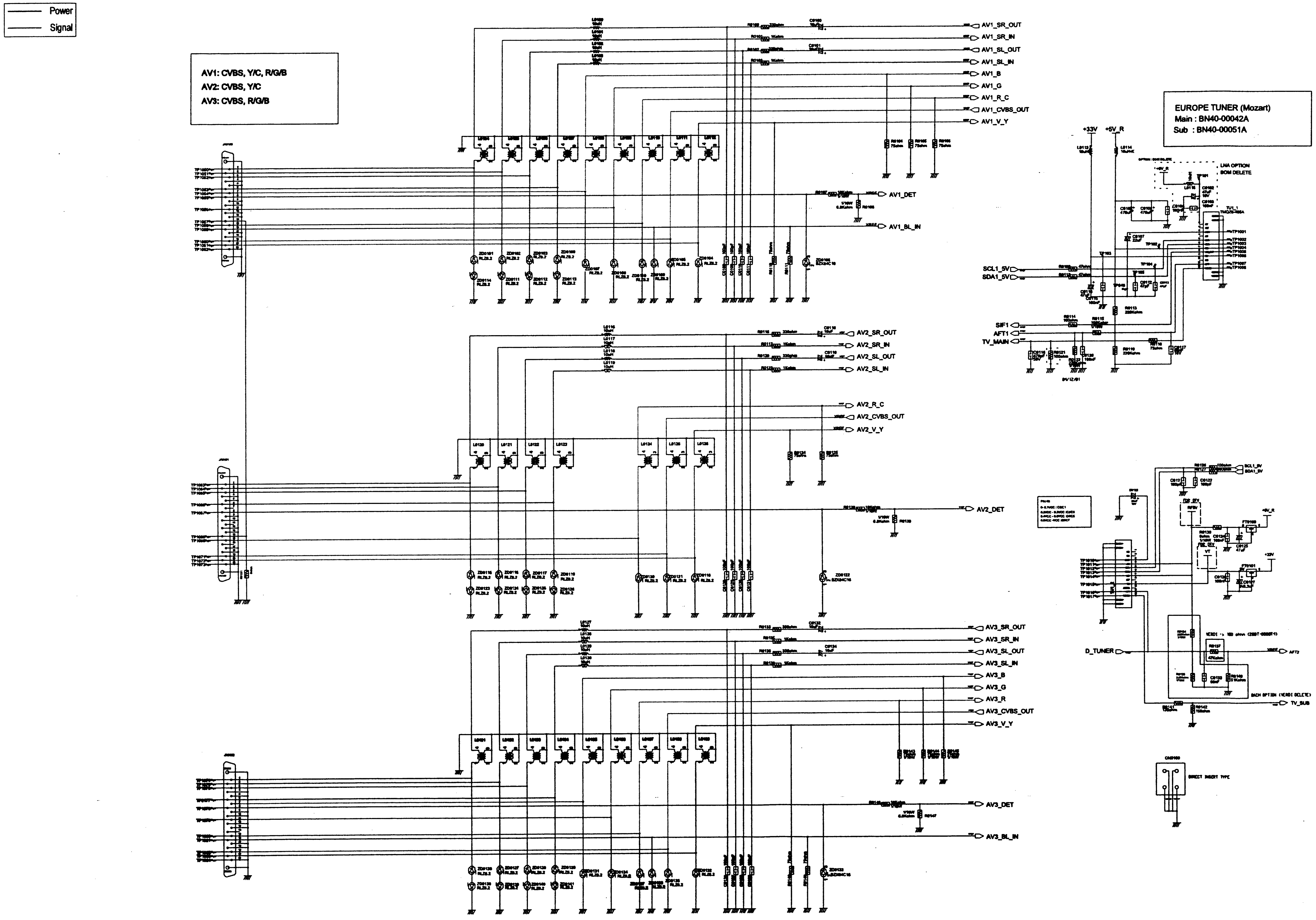
Power
Signal
AV1: CVBS, Y/C, R/G/B
AV2: CVBS, Y/C
AV3: CVBS, R/G/B
AV1_SR_OUT
AV1_SR_IN
AV1_SL_OUT
AV1_SL_IN
AV1_B
AV1_G
AV1_R_C
AV1_CVBS_OUT
AV1_V_Y
AV1_DET
AV1_BL_IN
AV2_SR_OUT
AV2_SR_IN
AV2_SL_OUT
AV2_SL_IN
AV2_R_C
AV2_CVBS_OUT
AV2_V_Y
AV2_DET
AV3_SR_OUT
AV3_SR_IN
AV3_SL_OUT
AV3_SL_IN
AV3_B
AV3_G
AV3_R
AV3_CVBS_OUT
AV3_V_Y
AV3_DET
AV3_BL_IN
EUROPE TUNER (Mozart)
Main : BN40-00042A
Sub : BN40-00051A
+33V
+5V_R
LNA OPTION
BOM DELETE
SCL1_5V
SDA1_5V
SIF1
AFT1
TV_MAIN
SCL1_5V
SDA1_5V
+5V_R
+33V
D_TUNER
AFT2
TV_SUB

10-1-2 Video switch

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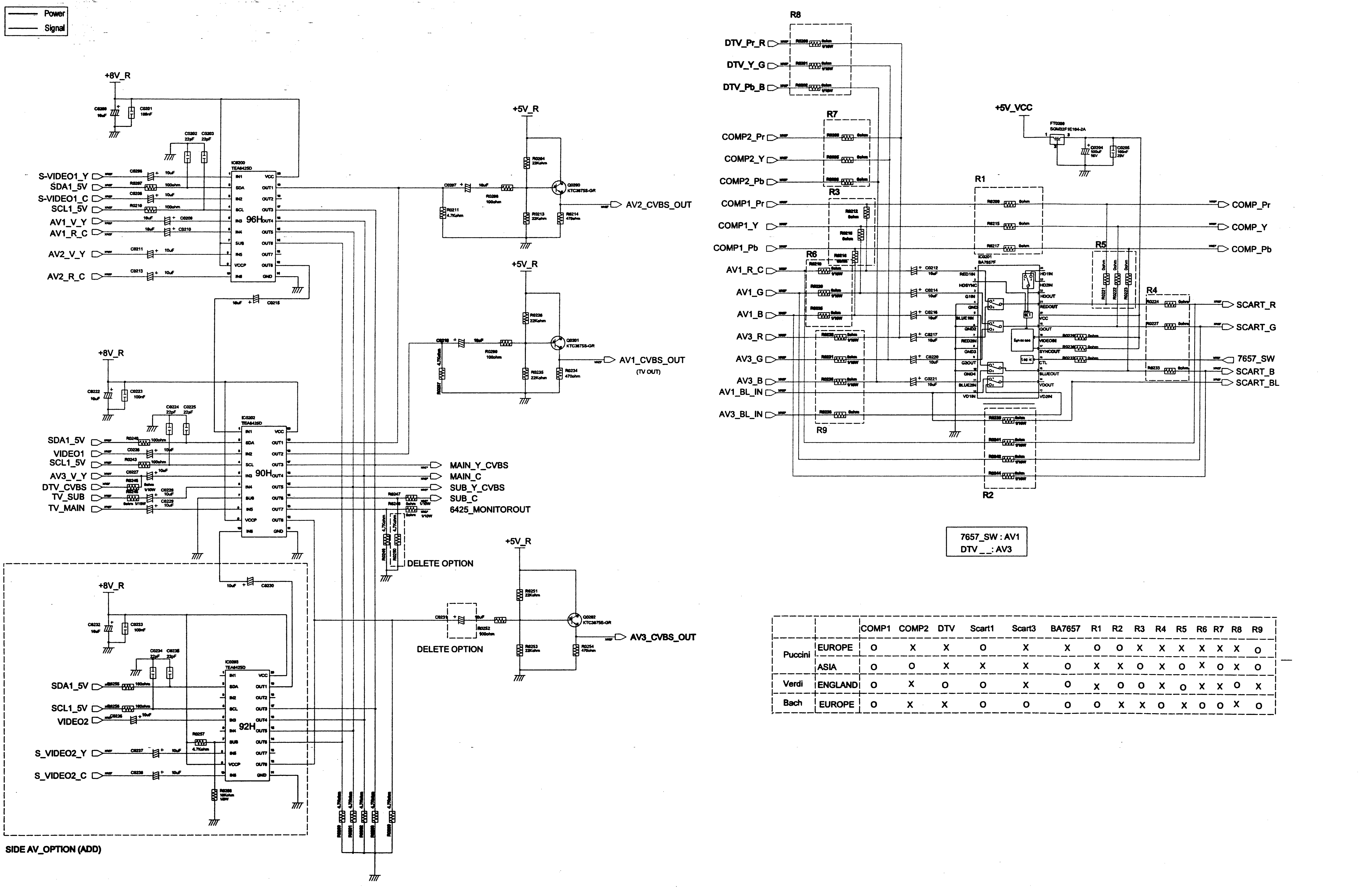
Power
Signal
+8V_R
C0200 10uF
C0201 100nF
C0202 22pF
C0203 22pF
IC0200 TEA6425D
96H
S-VIDEO1_Y
SDA1_5V
S-VIDEO1_C
SCL1_5V
AV1_V_Y
AV1_R_C
AV2_V_Y
AV2_R_C
IN1
SDA
IN2
SCL
IN3
IN4
SUB
IN5
VCCP
IN6
VCC
OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
OUT7
OUT8
GND
C0215 10uF
+5V_R
R0204 22Kohm
R0211 4.7Kohm
R0206 100ohm
R0213 22Kohm
R0214 470ohm
Q0200 KTC3875S-GR
AV2_CVBS_OUT
R0226 22Kohm
R0290 100ohm
R0235 22Kohm
R0234 470ohm
Q0201 KTC3875S-GR
AV1_CVBS_OUT
(TV OUT)
IC0202 TEA6425D
90H
SDA1_5V
VIDEO1
SCL1_5V
AV3_V_Y
DTV_CVBS
TV_SUB
TV_MAIN
MAIN_Y_CVBS
MAIN_C
SUB_Y_CVBS
SUB_C
6425_MONITOROUT
DELETE OPTION
IC0203 TEA6425D
92H
SDA1_5V
SCL1_5V
VIDEO2
S_VIDEO2_Y
S_VIDEO2_C
SIDE AV_OPTION (ADD)
R0251 22Kohm
R0252 100ohm
R0253 22Kohm
R0254 470ohm
Q0202 KTC3875S-GR
AV3_CVBS_OUT
DELETE OPTION
R8
DTV_Pr_R
DTV_Y_G
DTV_Pb_B
R7
COMP2_Pr
COMP2_Y
COMP2_Pb
R3
COMP1_Pr
COMP1_Y
COMP1_Pb
R6
AV1_R_C
AV1_G
AV1_B
AV3_R
AV3_G
AV3_B
AV1_BL_IN
AV3_BL_IN
R9
+5V_VCC
FT0200
C0204 100uF 16V
C0205 100nF 25V
R1
IC0201 BA7657F
RED1IN
HDSYNC
G1IN
GND
BLUE1IN
GND2
RED2IN
GND3
G2OUT
GND4
BLUE2IN
VD1IN
HD1IN
HD2IN
HDOUT
REDOUT
VCC
GOUT
VIDEOIN
SYNCOUT
CTL
BLUEOUT
VDOUT
VD2IN
R5
R4
R2
COMP_Pr
COMP_Y
COMP_Pb
SCART_R
SCART_G
7657_SW
SCART_B
SCART_BL

7657_SW : AV1
DTV __: AV3

		COMP1	COMP2	DTV	Scart1	Scart3	BA7657	R1	R2	R3	R4	R5	R6	R7	R8	R9
Puccini	EUROPE	O	X	X	O	X	X	O	O	X	X	X	X	X	X	O
	ASIA	O	O	X	X	X	O	X	X	O	X	O	X	O	X	O
Verdi	ENGLAND	O	X	O	O	X	O	X	O	O	X	O	X	X	O	X
Bach	EUROPE	O	X	X	O	O	O	O	X	X	O	X	O	O	X	O

10-1-2 Video switch

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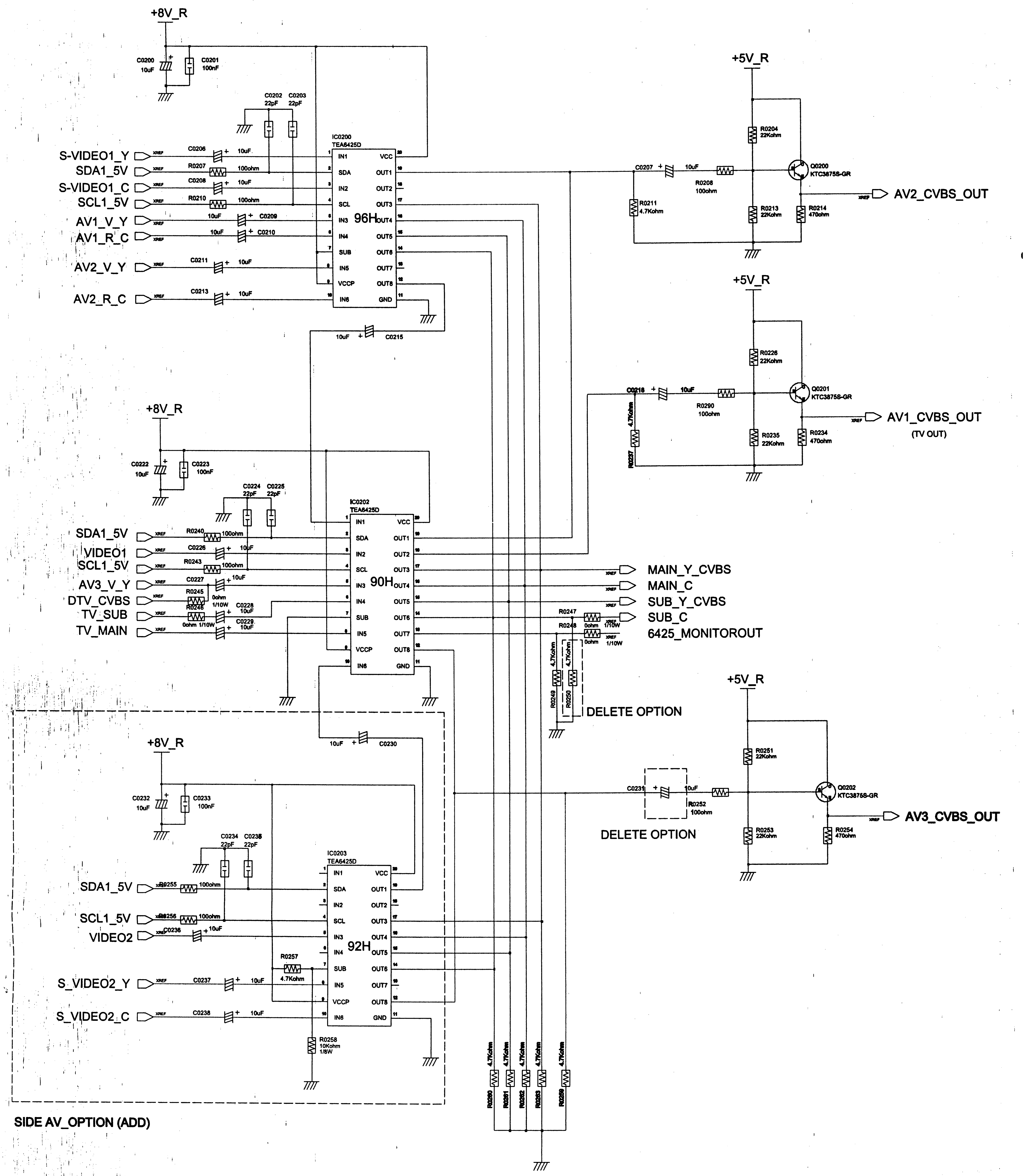
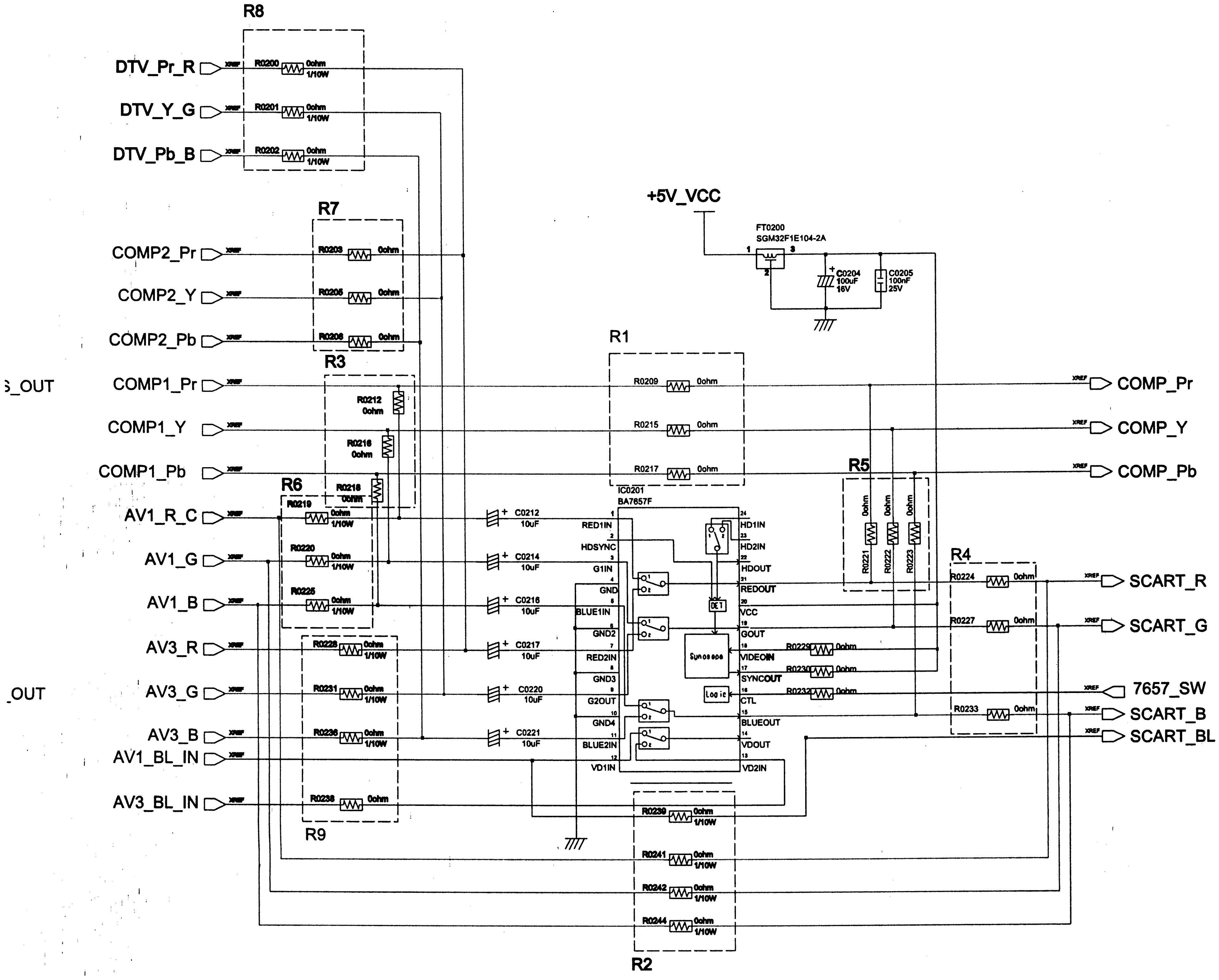
Power
Signal


+8V_R
C0200 10uF
C0201 100nF
C0202 22pF
C0203 22pF
IC0200 TEA6425D
96H
S-VIDEO1_Y
SDA1_5V
S-VIDEO1_C
SCL1_5V
AV1_V_Y
AV1_R_C
AV2_V_Y
AV2_R_C
C0206 10uF
R0207 100ohm
C0208 10uF
R0210 100ohm
C0209 10uF
C0210 10uF
C0211 10uF
C0213 10uF
C0215 10uF
IN1 SDA IN2 SCL IN3 IN4 SUB IN5 VCCP IN6
VCC OUT1 OUT2 OUT3 OUT4 OUT5 OUT6 OUT7 OUT8 GND
+5V_R
R0204 22Kohm
C0207 10uF
R0208 100ohm
R0211 4.7Kohm
R0213 22Kohm
R0214 470ohm
Q0200 KTC3875S-GR
AV2_CVBS_OUT
R0226 22Kohm
C0218 10uF
R0290 100ohm
R0237 4.7Kohm
R0235 22Kohm
R0234 470ohm
Q0201 KTC3875S-GR
AV1_CVBS_OUT
(TV OUT)
C0222 10uF
C0223 100nF
C0224 22pF
C0225 22pF
IC0202 TEA6425D
90H
SDA1_5V
VIDEO1
SCL1_5V
AV3_V_Y
DTV_CVBS
TV_SUB
TV_MAIN
R0240 100ohm
C0226 10uF
R0243 100ohm
C0227 10uF
R0245 0ohm 1/10W
R0246 0ohm 1/10W
C0228 10uF
C0229 10uF
MAIN_Y_CVBS
MAIN_C
SUB_Y_CVBS
SUB_C
6425_MONITOROUT
R0247 0ohm 1/10W
R0248 0ohm 1/10W
R0249 4.7Kohm
R0250 4.7Kohm
DELETE OPTION
C0230 10uF
R0251 22Kohm
C0231 10uF
R0252 100ohm
R0253 22Kohm
R0254 470ohm
Q0202 KTC3875S-GR
AV3_CVBS_OUT
DELETE OPTION
C0232 10uF
C0233 100nF
C0234 22pF
C0235 22pF
IC0203 TEA6425D
92H
SDA1_5V
SCL1_5V
VIDEO2
S_VIDEO2_Y
S_VIDEO2_C
R0255 100ohm
R0256 100ohm
C0236 10uF
R0257 4.7Kohm
C0237 10uF
C0238 10uF
R0258 10Kohm 1/8W
R0260 R0261 R0262 R0263 R0259 4.7Kohm
XREF
SIDE AV_OPTION (ADD)

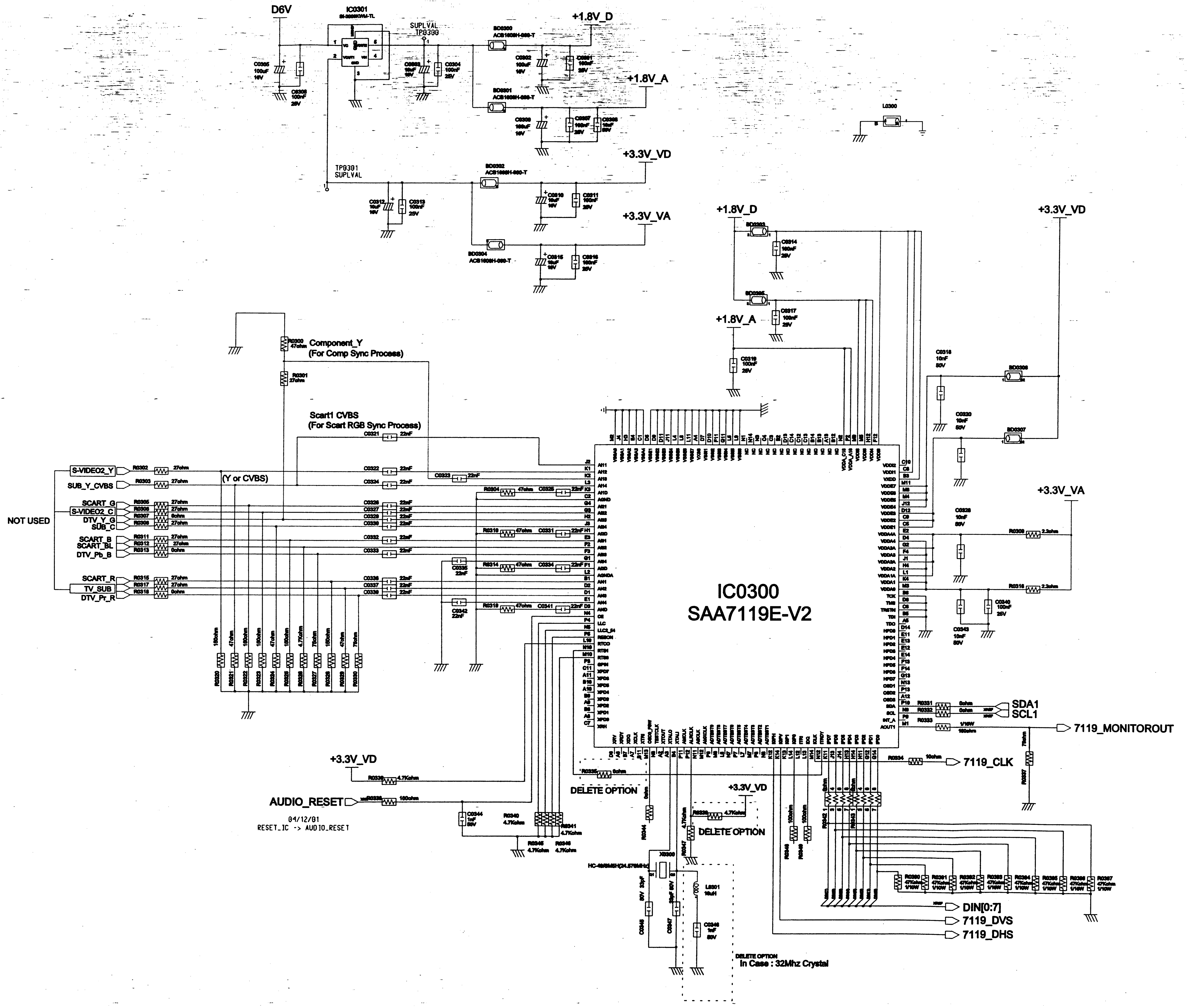

R8
DTV_Pr_R
DTV_Y_G
DTV_Pb_B
R0200 0ohm 1/10W
R0201 0ohm 1/10W
R0202 0ohm 1/10W
R7
COMP2_Pr
COMP2_Y
COMP2_Pb
R0203 0ohm
R0205 0ohm
R0206 0ohm
R3
S_OUT
COMP1_Pr
COMP1_Y
COMP1_Pb
R0212 0ohm
R0216 0ohm
R0218 0ohm
R6
AV1_R_C
AV1_G
AV1_B
R0219 0ohm 1/10W
R0220 0ohm 1/10W
R0225 0ohm 1/10W
AV3_R
_OUT
AV3_G
AV3_B
AV1_BL_IN
AV3_BL_IN
R0228 0ohm 1/10W
R0231 0ohm 1/10W
R0236 0ohm 1/10W
R0238 0ohm
R9
+5V_VCC
FT0200
SGM32F1E104-2A
C0204 100uF 16V
C0205 100nF 25V
R1
R0209 0ohm
R0215 0ohm
R0217 0ohm
IC0201
BA7657F
C0212 10uF
C0214 10uF
C0216 10uF
C0217 10uF
C0220 10uF
C0221 10uF
RED1IN
HDSYNC
G1IN
GND
BLUE1IN
GND2
RED2IN
GND3
G2OUT
GND4
BLUE2IN
VD1IN
HD1IN
HD2IN
HDOUT
REDOUT
VCC
GOUT
VIDEOIN
SYNCOUT
CTL
BLUEOUT
VDOUT
VD2IN
DET
Syncsepa
Logic
R5
R0221 0ohm
R0222 0ohm
R0223 0ohm
R0229 0ohm
R0230 0ohm
R0232 0ohm
R4
R0224 0ohm
R0227 0ohm
R0233 0ohm
COMP_Pr
COMP_Y
COMP_Pb
SCART_R
SCART_G
7657_SW
SCART_B
SCART_BL
R0239 0ohm 1/10W
R0241 0ohm 1/10W
R0242 0ohm 1/10W
R0244 0ohm 1/10W
R2
XREF

7657_SW : AV1
DTV _ _: AV3

3S_OUT

		COMP1	COMP2	DTV	Scart1	Scart3	BA7657	R1	R2	R3	R4	R5	R6	R7	R8	R9
Puccini	EUROPE	O	X	X	O	X	X	O	O	X	X	X	X	X	X	O
	ASIA	O	O	X	X	X	O	X	X	O	X	O	X	O	X	O
Verdi	ENGLAND	O	X	O	O	X	O	X	O	O	X	O	X	X	O	X
Bach	EUROPE	O	X	X	O	O	O	O	X	X	O	X	O	O	X	O

Samsung's authorization.


D6V
IC0301
SUPLVAL
TP0300
+1.8V_D
BD0300
ACB1608H-060-T
+1.8V_A
BD0301
ACB1608H-060-T
L0300
TP0301
SUPLVAL
BD0302
ACB1608H-060-T
+3.3V_VD
+3.3V_VA
BD0304
ACB1608H-060-T
+1.8V_D
+1.8V_A
+3.3V_VD
+3.3V_VA
R0300 47ohm
Component_Y
(For Comp Sync Process)
R0301 27ohm
Scart1 CVBS
(For Scart RGB Sync Process)
S-VIDEO2_Y
SUB_Y_CVBS
(Y or CVBS)
SCART_G
S-VIDEO2_C
DTV_Y_G
SUB_C
NOT USED
SCART_B
SCART_BL
DTV_Pb_B
SCART_R
TV_SUB
DTV_Pr_R
IC0300
SAA7119E-V2
SDA1
SCL1
7119_MONITOROUT
7119_CLK
+3.3V_VD
AUDIO_RESET
04/12/01
RESET_IC -> AUDIO_RESET
DELETE OPTION
+3.3V_VD
DELETE OPTION
X0300
HC-49/SMD(24.576MHz)
L0301
DIN[0:7]
7119_DVS
7119_DHS
DELETE OPTION
In Case : 32Mhz Crystal

10-1-3 SAA7119

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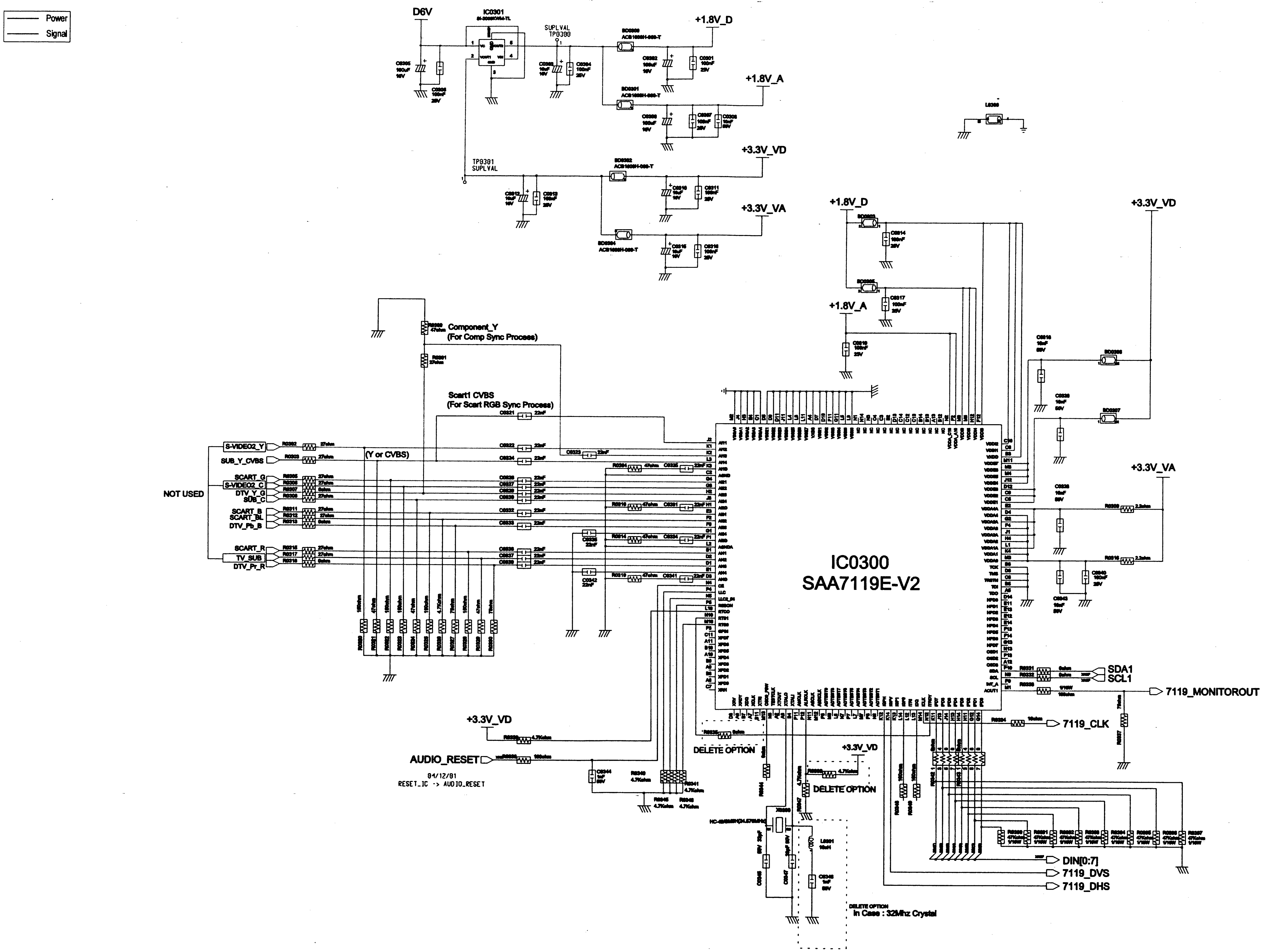
Power
Signal
D6V
IC0301
SUPLVAL
TP0300
+1.8V_D
+1.8V_A
+3.3V_VD
TP0301
SUPLVAL
+3.3V_VA
L0300
+1.8V_D
+1.8V_A
+3.3V_VD
Component_Y
(For Comp Sync Process)
Scart1 CVBS
(For Scart RGB Sync Process)
S-VIDEO2_Y
SUB_Y_CVBS
(Y or CVBS)
SCART_G
S-VIDEO2_C
DTV_Y_G
SUB_C
NOT USED
SCART_B
SCART_BL
DTV_Pb_B
SCART_R
TV_SUB
DTV_Pr_R
IC0300
SAA7119E-V2
+3.3V_VA
SDA1
SCL1
7119_MONITOROUT
7119_CLK
+3.3V_VD
AUDIO_RESET
04/12/01
RESET_IC -> AUDIO_RESET
DELETE OPTION
+3.3V_VD
DELETE OPTION
DIN[0:7]
7119_DVS
7119_DHS
DELETE OPTION
In Case : 32Mhz Crystal

10-1-4 HDMI_PC IN

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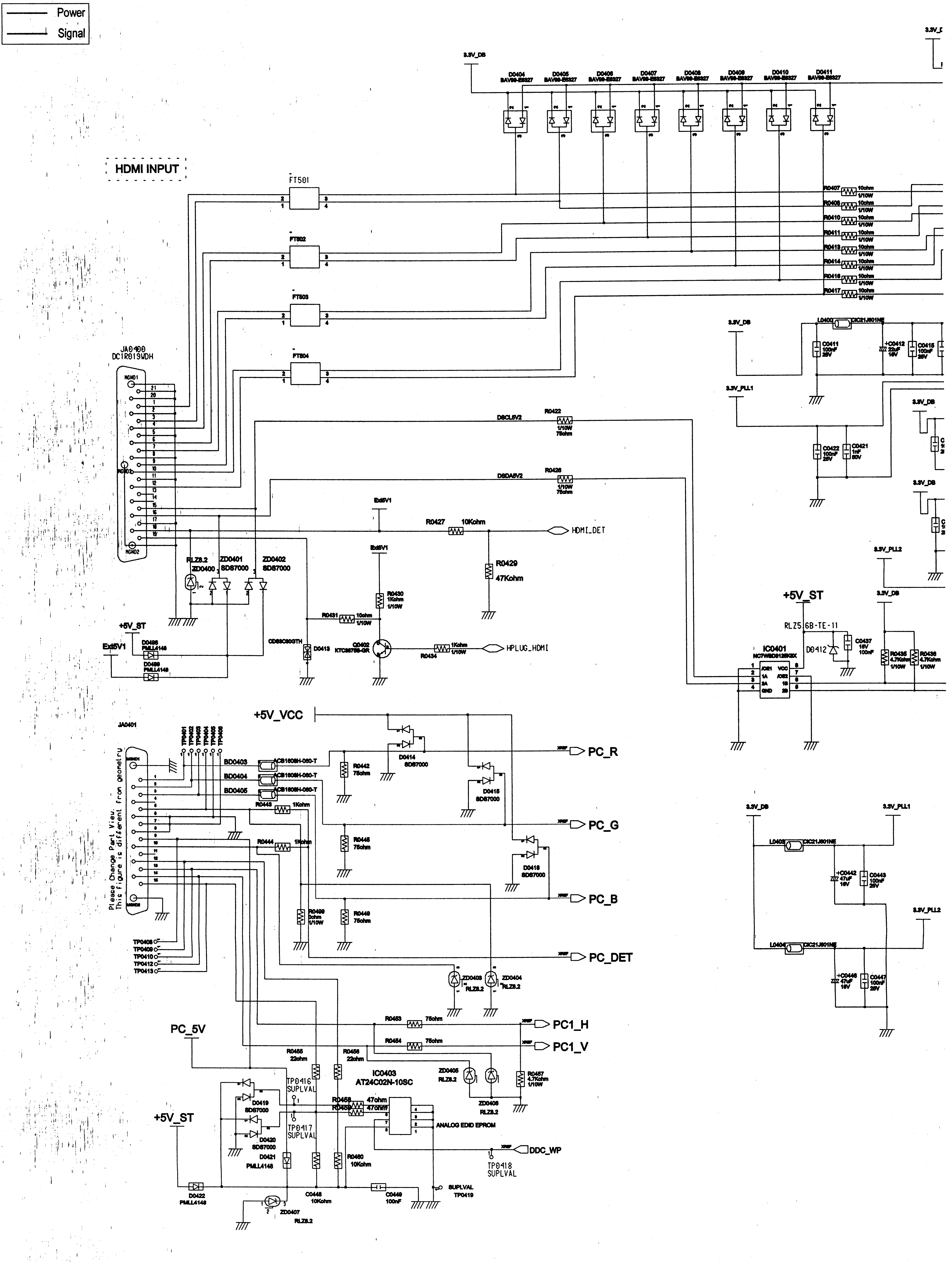
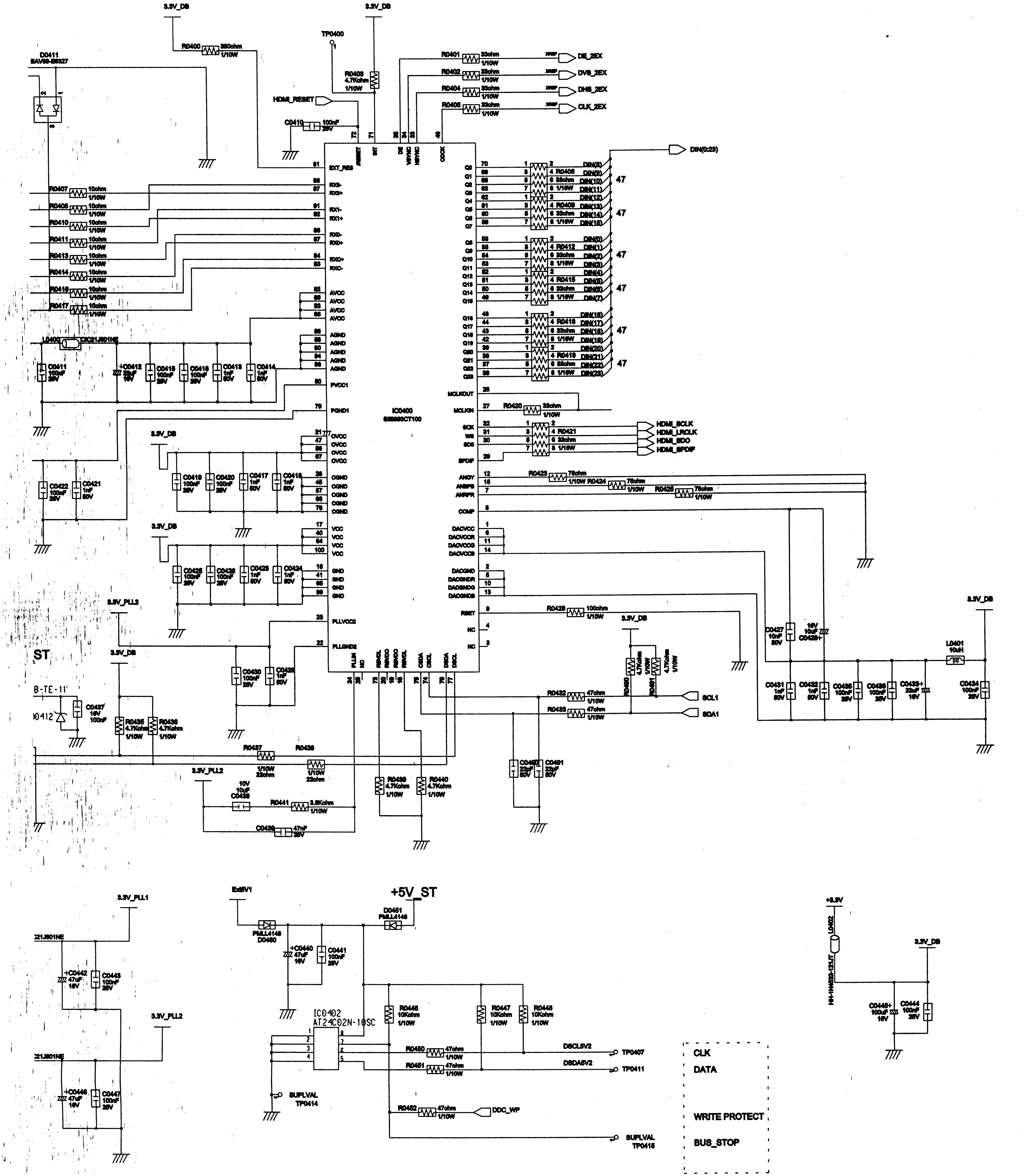

Power
Signal
HDMI INPUT
JA0400
DC1R019WDH
3.3V_DB
D0404 BAV99-E6327
D0405 BAV99-E6327
D0406 BAV99-E6327
D0407 BAV99-E6327
D0408 BAV99-E6327
D0409 BAV99-E6327
D0410 BAV99-E6327
D0411 BAV99-E6327
FT501
FT502
FT503
FT504
R0407 10ohm 1/10W
R0408 10ohm 1/10W
R0410 10ohm 1/10W
R0411 10ohm 1/10W
R0413 10ohm 1/10W
R0414 10ohm 1/10W
R0416 10ohm 1/10W
R0417 10ohm 1/10W
L0400 CIC21J601NE
C0411 100nF 25V
C0412 22uF 16V
C0415 100nF 25V
3.3V_PLL1
C0422 100nF 25V
C0421 1nF 50V
3.3V_PLL2
DSCL5V2
R0422 1/10W 75ohm
DSDA5V2
R0426 1/10W 75ohm
Ext5V1
R0427 10Kohm
HDMI_DET
R0429 47Kohm
RLZ8.2
ZD0400
ZD0401 SDS7000
ZD0402 SDS7000
R0430 1Kohm 1/10W
R0431 10ohm 1/10W
Q0402 KTC3875S-GR
R0434 1Kohm 1/10W
HPLUG_HDMI
CDS3C30GTH
D0413
+5V_ST
D0498 PMLL4148
D0499 PMLL4148
+5V_ST
RLZ5.6B-TE-11
D0412
C0437 16V 100nF
IC0401 NC7WBD3125K8X
R0435 4.7Kohm 1/10W
R0436 4.7Kohm 1/10W
JA0401
Please Change Part View. This figure is different from geometry
TP0401 TP0402 TP0403 TP0404 TP0405 TP0406
+5V_VCC
BD0403 ACB1608H-060-T
BD0404 ACB1608H-060-T
BD0405 ACB1608H-060-T
R0442 75ohm
D0414 SDS7000
D0415 SDS7000
PC_R
PC_G
R0443 1Kohm
R0444 1Kohm
R0445 75ohm
D0416 SDS7000
PC_B
R0499 0ohm 1/10W
R0449 75ohm
PC_DET
TP0408 TP0409 TP0410 TP0412 TP0413
ZD0403 RLZ8.2
ZD0404 RLZ8.2
R0453 75ohm
PC1_H
R0454 75ohm
PC1_V
PC_5V
R0455 22ohm
R0456 22ohm
IC0403 AT24C02N-10SC
ZD0405 RLZ8.2
ZD0406 RLZ8.2
R0457 4.7Kohm 1/10W
TP0416 SUPLVAL
R0458 47ohm
R0459 470ohm
ANALOG EDID EPROM
D0419 SDS7000
D0420 SDS7000
D0421 PMLL4148
TP0417 SUPLVAL
R0460 10Kohm
DDC_WP
TP0418 SUPLVAL
D0422 PMLL4148
C0448 10Kohm
C0449 100nF
SUPLVAL TP0419
ZD0407 RLZ8.2
3.3V_DB
3.3V_PLL1
L0403 CIC21J601NE
C0442 47uF 16V
C0443 100nF 25V
3.3V_PLL2
L0404 CIC21J601NE
C0446 47uF 16V
C0447 100nF 25V



3.3V_DB
R0400 390ohm 1/10W
TP0400
R0403 4.7Kohm 1/10W
HDMI_RESET
C0410 100nF 25V
R0401 33ohm 1/10W DE_2EX
R0402 33ohm 1/10W DVS_2EX
R0404 33ohm 1/10W DHS_2EX
R0405 33ohm 1/10W CLK_2EX
DIN(0:23)
D0411 BAV99-E6327
EXT_RES
RXC- RXC+ RX1- RX1+ RX0- RX0+ RXC+ RXC-
R0407 R0408 R0410 R0411 R0413 R0414 R0416 R0417 10ohm 1/10W
AVCC AGND PVCC1 PGND1 CVCC CGND VCC GND PLLVCC2 PLLGND2
L0400 CIC21J501NE
C0411 100nF 25V
C0412 22uF 16V
C0415 100nF 25V
C0416 100nF 25V
C0413 1nF 50V
C0414 1nF 50V
C0422 100nF 25V
C0421 1nF 50V
C0419 100nF 25V
C0420 100nF 25V
C0417 1nF 50V
C0418 1nF 50V
C0425 100nF 25V
C0426 100nF 25V
C0423 1nF 50V
C0424 1nF 50V
IC0400
Sil9993CT100
R0406 R0409 R0412 R0415 R0418 R0419 33ohm 1/16W
47
MCLKOUT MCLKIN SCK WS SD0 SPDIF
R0420 33ohm 1/10W
R0421 33ohm 1/16W
HDMI_SCLK
HDMI_LRCLK
HDMI_SDO
HDMI_SPDIF
ANGY ANRPR ANBPB COMP
R0423 75ohm 1/10W
R0424 75ohm 1/10W
R0425 75ohm 1/10W
DACVCC DACVCCR DACVCCG DACVCCB DACGND DACGNDR DACGNDG DACGNDB
RSET NC
R0426 100ohm 1/10W
3.3V_PLL2
ST
B-TE-11
D0412
C0437 16V 100nF
R0435 4.7Kohm 1/10W
R0436 4.7Kohm 1/10W
C0430 100nF 25V
C0429 1nF 50V
R0437 1/10W 22ohm
R0438 1/10W 22ohm
C0438 10V 10uF
R0441 3.9Kohm 1/10W
C0439 47nF 25V
R0439 4.7Kohm 1/10W
R0440 4.7Kohm 1/10W
R0490 R0491 4.7Kohm 1/10W
R0432 47ohm 1/10W SCL1
R0433 47ohm 1/10W SDA1
C0490 22pF 50V
C0491 22pF 50V
C0427 10nF 50V
C0428 16V 10uF
L0401 10uH
C0431 1nF 50V
C0432 1nF 50V
C0435 100nF 25V
C0436 100nF 25V
C0433 22uF 16V
C0434 100nF 25V
3.3V_PLL1
CIC21J501NE
C0442 47uF 16V
C0443 100nF 25V
C0446 47uF 16V
C0447 100nF 25V
Ext5V1
+5V_ST
D0451 PMLL4148
D0450 PMLL4148
C0440 47uF 16V
C0441 100nF 25V
IC0402
AT24C02N-10SC
R0446 10Kohm 1/10W
R0447 10Kohm 1/10W
R0448 10Kohm 1/10W
R0450 47ohm 1/10W DSCL5V2 TP0407
R0451 47ohm 1/10W DSDA5V2 TP0411
R0452 47ohm 1/10W DDC_WP
SUPLVAL TP0414
SUPLVAL TP0415
CLK
DATA
WRITE PROTECT
BUS_STOP
+3.3V
L0402
HH-1M4532-121JT
C0445 100uF 16V
C0444 100nF 25V

10-1-4 HDMI_PC IN

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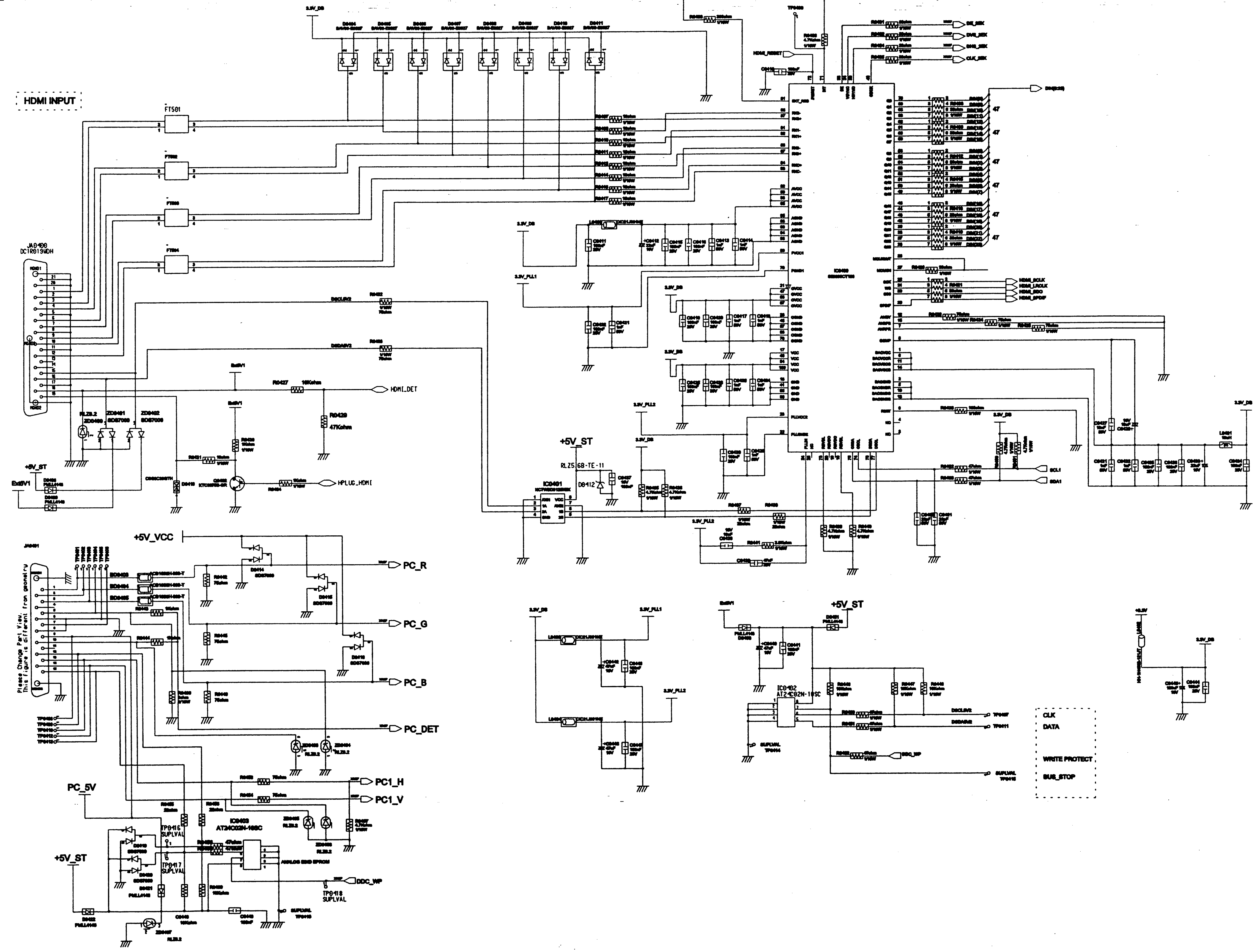
Power
Signal


HDMI INPUT
FT501
JA0400
DC1R019WDH
+5V_ST
Ext5V1
HDMI_DET
R0429
47Kohm
HPLUG_HDMI
+5V_ST
RLZ5.6B-TE-11
D0412
IC0401
+5V_VCC
PC_R
PC_G
PC_B
PC_DET
Please Change Part View.
This figure is different from geometry
PC1_H
PC1_V
PC_5V
+5V_ST
IC0403
AT24C02N-10SC
TP0416
SUPLVAL
TP0417
SUPLVAL
ANALOG EDID EPROM
DDC_WP
TP0418
SUPLVAL
+5V_ST
IC0402
AT24C02N-10SC
SCL1
SDA1
CLK
DATA
WRITE PROTECT
BUS_STOP

10-1-5 SVP EX

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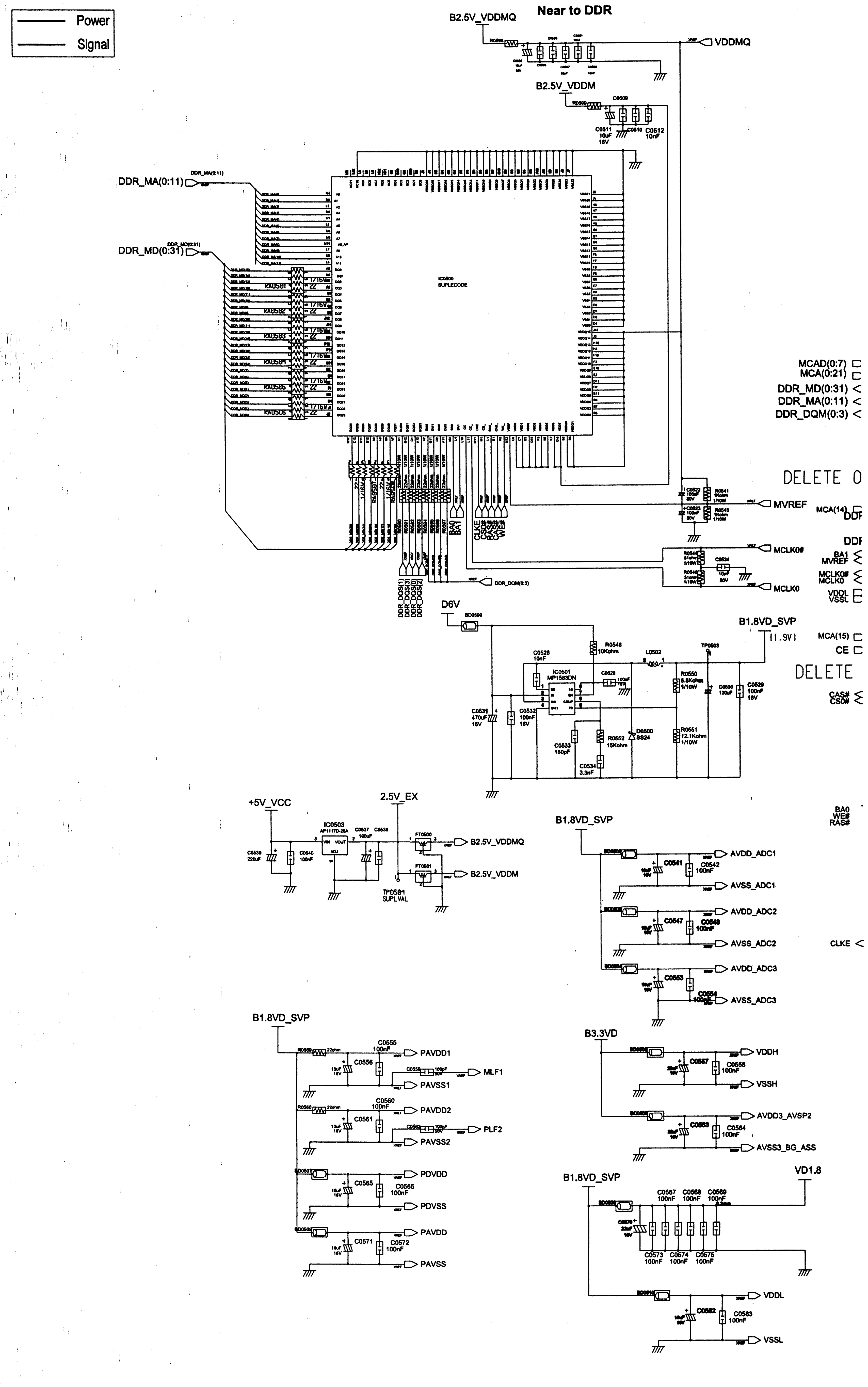
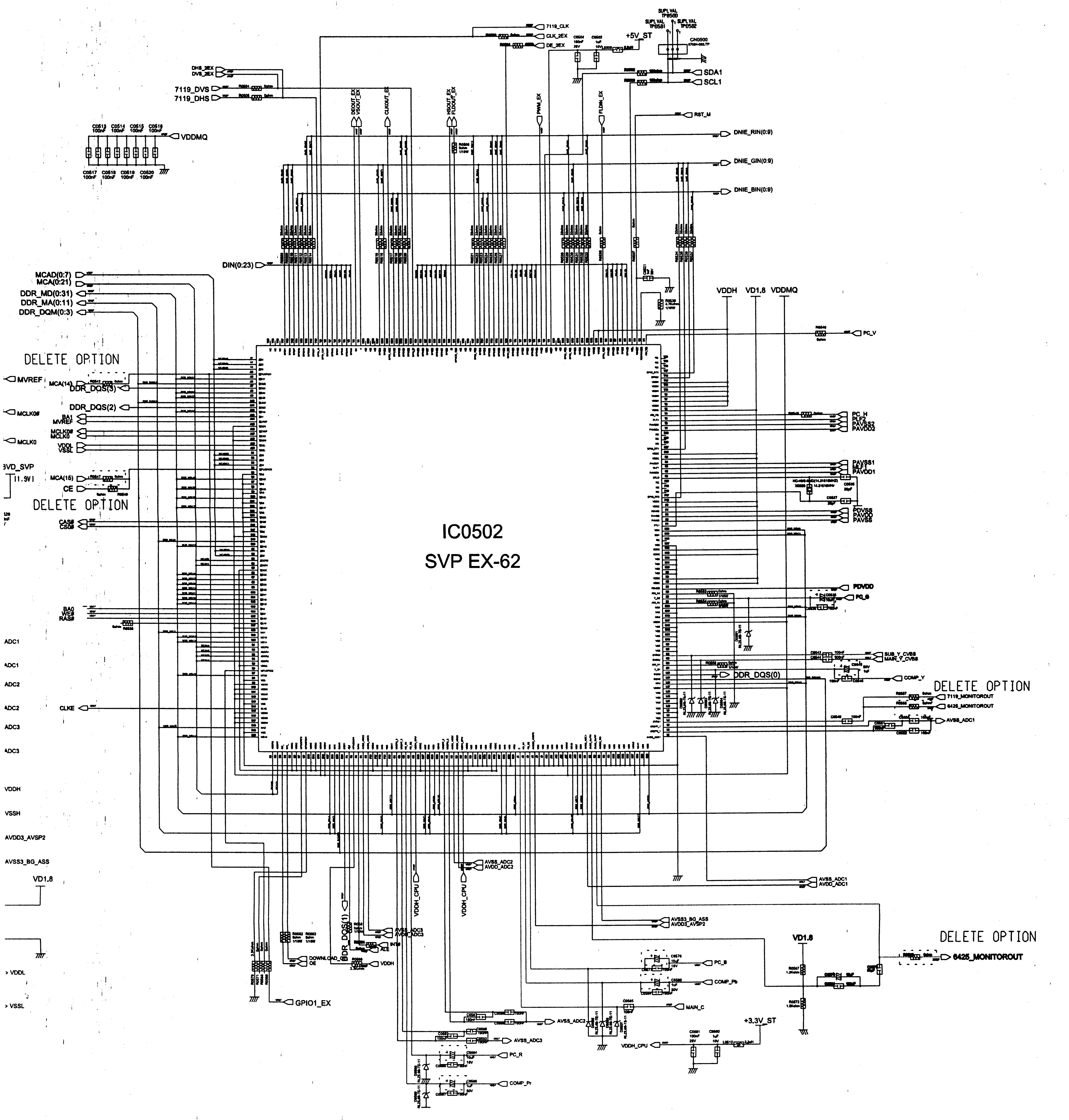
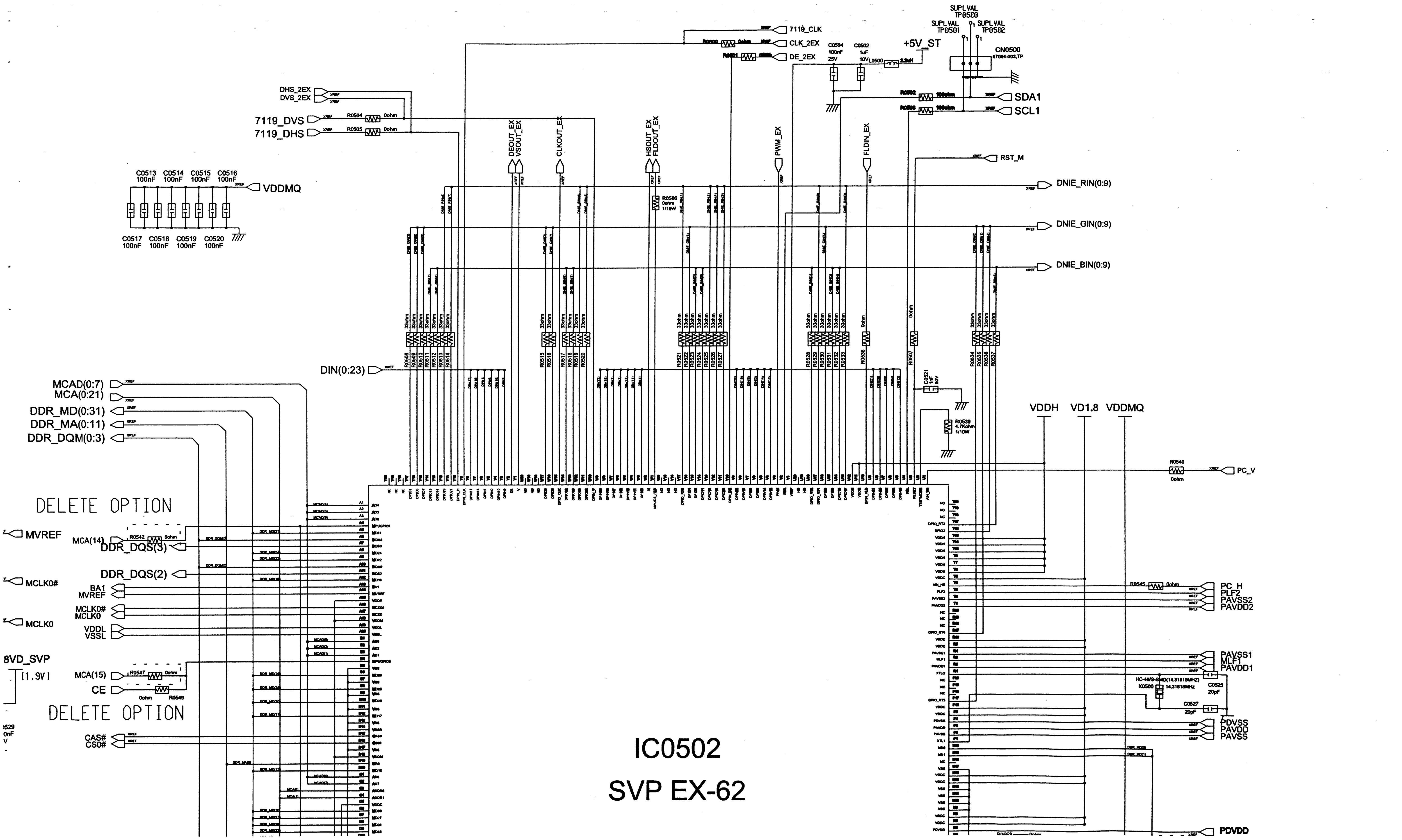
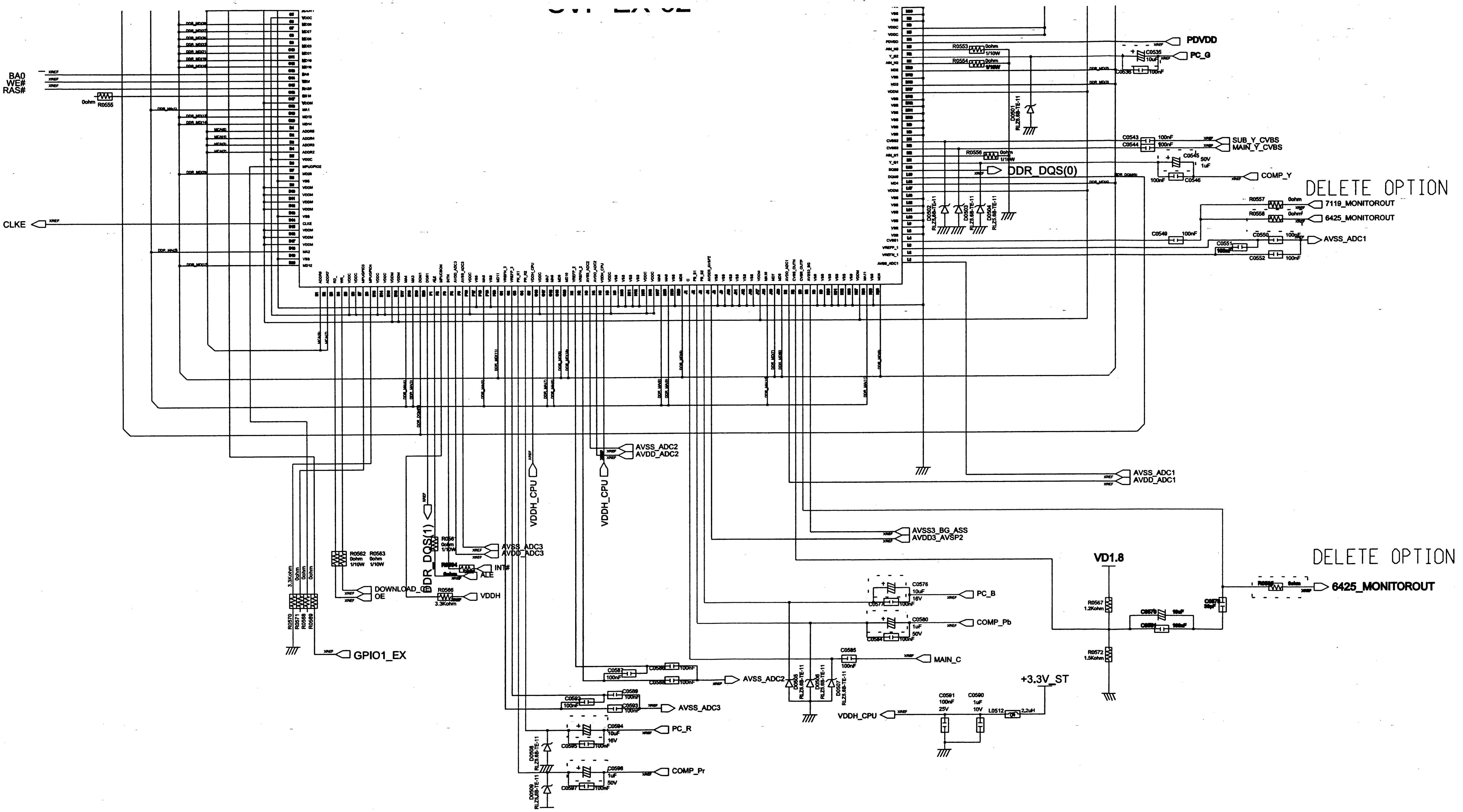


Power
Signal
Near to DDR
B2.5V_VDDMQ
VDDMQ
B2.5V_VDDM
C0509
C0511 10uF 16V
C0510
C0512 10nF
DDR_MA(0:11)
DDR_MD(0:31)
RA0501
RA0502
RA0503
RA0504
RA0505
RA0506
IC0500 SUPLECODE
MCAD(0:7)
MCA(0:21)
DDR_MD(0:31)
DDR_MA(0:11)
DDR_DQM(0:3)
DELETE O
MVREF
MCA(14)
DDF
BA1
MVREF
MCLK0#
MCLK0
VDDL
VSSL
MCA(15)
CE
DELETE
CAS#
CS0#
BA0
BA1
CLKE
CS0#
RAS#
CAS#
WE#
DDR_DQS(1)
DDR_DQS(3)
DDR_DQS(0)
DDR_DQS(2)
DDR_DQM(0:3)
D6V
BD0500
R0548 10Kohm
B1.8VD_SVP
(1.9V)
TP0503
L0502
C0526 10nF
IC0501 MP1583DN
C0528
R0550 6.8Kohm 1/10W
C0530 120uF
C0529 100nF 16V
C0531 470uF 16V
C0532 100nF 16V
C0533 180pF
R0552 15Kohm
D0500 SS24
R0551 12.1Kohm 1/10W
C0534 3.3nF
BA0
WE#
RAS#
+5V_VCC
2.5V_EX
IC0503 AP1117D-25A
C0537 100uF
C0538
C0539 220uF
C0540 100nF
TP0501 SUPLVAL
FT0500
FT0501
B2.5V_VDDMQ
B2.5V_VDDM
B1.8VD_SVP
AVDD_ADC1
C0541
C0542 100nF
AVSS_ADC1
AVDD_ADC2
C0547
C0548 100nF
AVSS_ADC2
CLKE
AVDD_ADC3
C0553
C0554 100nF
AVSS_ADC3
B1.8VD_SVP
R0559 22ohm
C0555 100nF
PAVDD1
C0556
MLF1
PAVSS1
R0560 22ohm
C0560 100nF
PAVDD2
C0561
PLF2
PAVSS2
BD0507
PDVDD
C0565
C0566 100nF
PDVSS
BD0509
PAVDD
C0571
C0572 100nF
PAVSS
B3.3VD
VDDH
C0557
C0558 100nF
VSSH
AVDD3_AVSP2
C0563
C0564 100nF
AVSS3_BG_ASS
B1.8VD_SVP
VD1.8
C0567 100nF
C0568 100nF
C0569 100nF
C0570
C0573 100nF
C0574 100nF
C0575 100nF
VDDL
C0582
C0583 100nF
VSSL


IC0502
SVP EX-62
7119_CLK
CLK_2EX
DE_2EX
+5V_ST
SUPLVAL TP0580
SUPLVAL TP0581
SUPLVAL TP0582
CN0500
SDA1
SCL1
DHS_2EX
DVS_2EX
7119_DVS
7119_DHS
DEOUT_EX
VSOUT_EX
CLKOUT_EX
HSOUT_EX
FLDOUT_EX
PWM_EX
FLDIN_EX
RST_M
DNIE_RIN(0:9)
DNIE_GIN(0:9)
DNIE_BIN(0:9)
VDDMQ
C0513 100nF
C0514 100nF
C0515 100nF
C0516 100nF
C0517 100nF
C0518 100nF
C0519 100nF
C0520 100nF
DIN(0:23)
MCAD(0:7)
MCA(0:21)
DDR_MD(0:31)
DDR_MA(0:11)
DDR_DQM(0:3)
DELETE OPTION
MVREF
MCA(14)
DDR_DQS(3)
DDR_DQS(2)
MCLK0#
MCLK0
BA1
MVREF
MCLK0#
MCLK0
VDDL
VSSL
3VD_SVP
[1.9V]
MCA(15)
CE
DELETE OPTION
CAS#
CS0#
BA0
WE#
RAS#
ADC1
ADC1
ADC2
ADC2
ADC3
ADC3
CLKE
VDDH
VSSH
AVDD3_AVSP2
AVSS3_BG_ASS
VD1.8
VDDL
VSSL
VDDH
VD1.8
VDDMQ
PC_V
PC_H
PAVSS2
PAVDD2
PAVSS1
PAVDD1
PDVSS
PAVDD
PAVSS
PDVDD
PC_G
SUB_Y_CVBS
MAIN_Y_CVBS
COMP_Y
DDR_DQS(0)
DELETE OPTION
7119_MONITOROUT
6425_MONITOROUT
AVSS_ADC1
AVSS_ADC2
AVDD_ADC2
AVSS_ADC1
AVDD_ADC1
VDDH_CPU
VDDH_CPU
DDR_DQS(1)
AVSS_ADC3
AVDD_ADC3
INT#
ALE
DOWNLOAD_OE
OE
VDDH
GPIO1_EX
AVSS3_BG_ASS
AVDD3_AVSP2
PC_B
COMP_Pb
MAIN_C
AVSS_ADC2
AVSS_ADC3
PC_R
COMP_Pr
VD1.8
DELETE OPTION
6425_MONITOROUT
+3.3V_ST
VDDH_CPU


SUPLVAL
TP0500
SUPLVAL
TP0501
SUPLVAL
TP0502
CN0500
7119_CLK
CLK_2EX
DE_2EX
C0504
100nF
25V
C0502
1uF
10V
L0500
+5V_ST
SDA1
SCL1
DHS_2EX
DVS_2EX
7119_DVS
7119_DHS
R0504
0ohm
R0505
0ohm
DEOUT_EX
VSOUT_EX
CLKOUT_EX
HSOUT_EX
FLDOUT_EX
PWM_EX
FLDIN_EX
RST_M
C0513
100nF
C0514
100nF
C0515
100nF
C0516
100nF
VDDMQ
C0517
100nF
C0518
100nF
C0519
100nF
C0520
100nF
R0506
0ohm
1/10W
DNIE_RIN(0:9)
DNIE_GIN(0:9)
DNIE_BIN(0:9)
33ohm
R0508
R0509
R0510
R0511
R0512
R0513
R0514
R0515
R0516
R0517
R0518
R0519
R0520
R0521
R0522
R0523
R0524
R0525
R0526
R0527
R0528
R0529
R0530
R0531
R0532
R0533
R0538
R0507
R0534
R0535
R0536
R0537
DIN(0:23)
C0521
1nF
50V
R0539
4.7Kohm
1/10W
VDDH
VD1.8
VDDMQ
R0540
0ohm
PC_V
MCAD(0:7)
MCA(0:21)
DDR_MD(0:31)
DDR_MA(0:11)
DDR_DQM(0:3)
DELETE OPTION
MVREF
MCA(14)
R0542
0ohm
DDR_DQS(3)
DDR_DQS(2)
MCLK0#
BA1
MVREF
MCLK0#
MCLK0
MCLK0
VDDL
VSSL
8VD_SVP
[1.9V]
MCA(15)
R0547
0ohm
CE
0ohm
R0549
DELETE OPTION
CAS#
CS0#
R0545
0ohm
PC_H
PLF2
PAVSS2
PAVDD2
PAVSS1
MLF1
PAVDD1
HC-49/S-SMD(14.31818MHZ)
X0500
14.31818MHz
C0525
20pF
C0527
20pF
PDVSS
PAVDD
PAVSS
PDVDD
IC0502
SVP EX-62


BA0
WE#
RAS#
R0555
0ohm
CLKE
PDVDD
PC_G
R0553
0ohm
1/10W
R0554
C0535
10uF
C0536
100nF
D0501
RLZ5.6B-TE-11
C0543
100nF
C0544
100nF
SUB_Y_CVBS
MAIN_Y_CVBS
R0556
C0545
50V
1uF
C0546
100nF
DDR_DQS(0)
COMP_Y
D0502
D0503
D0504
RLZ5.6B-TE-11
R0557
0ohm
7119_MONITOROUT
R0558
0ohm
6425_MONITOROUT
C0549
100nF
C0550
C0551
C0552
AVSS_ADC1
AVSS_ADC2
AVDD_ADC2
VDDH_CPU
VDDH_CPU
AVSS_ADC1
AVDD_ADC1
AVSS3_BG_ASS
AVDD3_AVSP2
DDR_DQS(1)
R0561
0ohm
1/10W
AVSS_ADC3
AVDD_ADC3
R0562
R0563
0ohm
1/10W
DOWNLOAD_
OE
R0564
INT#
ALE
R0566
3.3Kohm
VDDH
3.3Kohm
0ohm
R0570
R0571
R0568
R0569
GPIO1_EX
VD1.8
R0567
1.2Kohm
R0572
1.5Kohm
C0578
10uF
C0584
100nF
C0574
6425_MONITOROUT
C0576
10uF
16V
PC_B
C0577
100nF
C0580
1uF
50V
COMP_Pb
C0584
100nF
C0585
100nF
MAIN_C
D0505
D0506
D0507
RLZ5.6B-TE-11
C0587
100nF
C0586
100nF
C0588
100nF
AVSS_ADC2
C0589
100nF
C0592
100nF
C0593
100nF
AVSS_ADC3
C0594
10uF
16V
PC_R
C0595
100nF
D0508
RLZ5.6B-TE-11
C0596
1uF
50V
COMP_Pr
C0597
100nF
D0509
RLZ5.6B-TE-11
+3.3V_ST
C0591
100nF
25V
C0590
1uF
10V
L0512
2.2uH
VDDH_CPU
XREF

DELETE OPTION

DELETE OPTION

10-1-5 SVP EX

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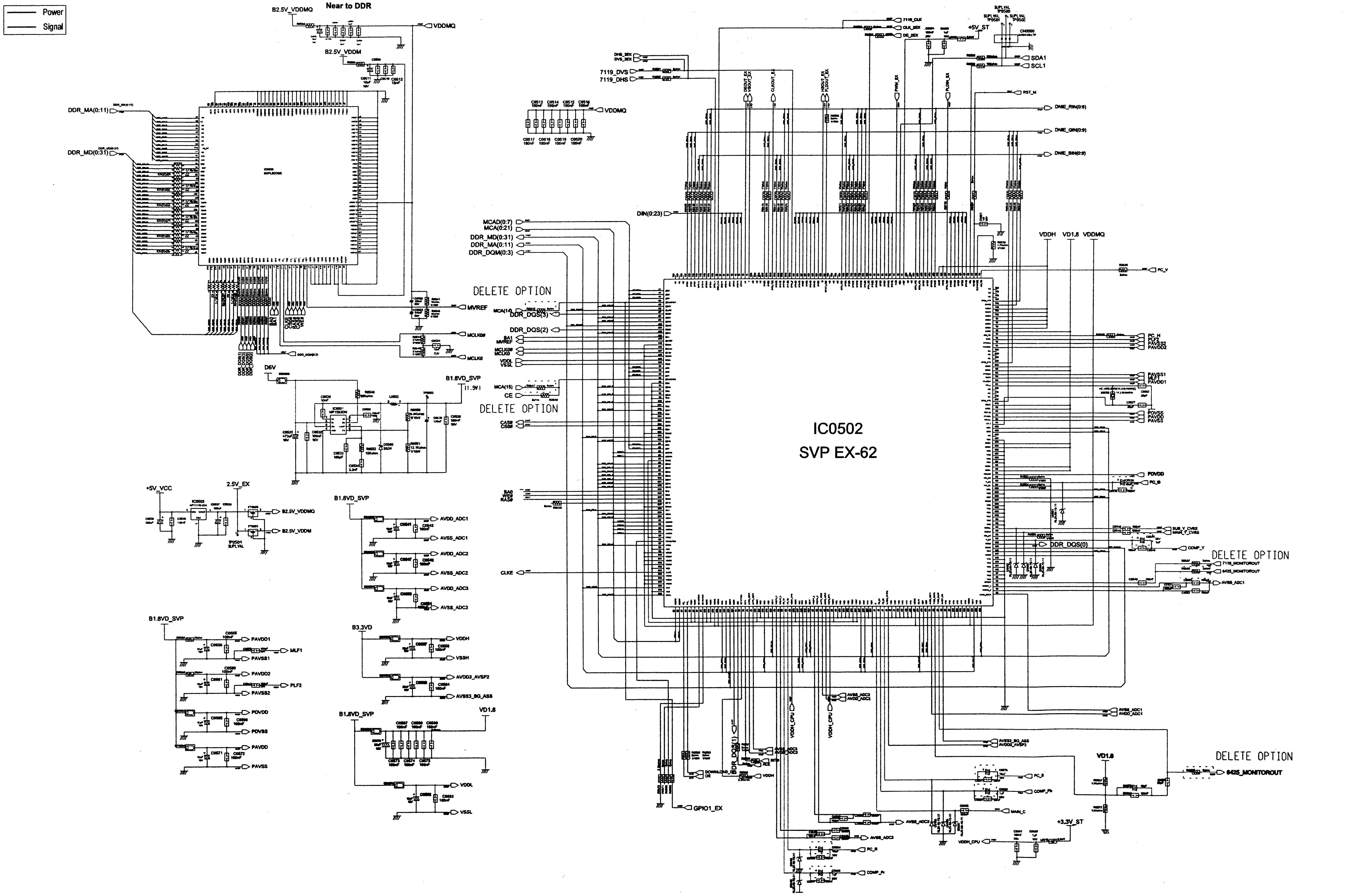
Power
Signal
Near to DDR
B2.5V_VDDMQ
VDDMQ
B2.5V_VDDM
DDR_MA(0:11)
DDR_MD(0:31)
MVREF
MCLK0#
MCLK0
D6V
B1.8VD_SVP
+5V_VCC
2.5V_EX
B2.5V_VDDMQ
B2.5V_VDDM
TP0501
AVDD_ADC1
AVSS_ADC1
AVDD_ADC2
AVSS_ADC2
AVDD_ADC3
AVSS_ADC3
PAVDD1
MLF1
PAVSS1
PAVDD2
PLF2
PAVSS2
PDVDD
PDVSS
PAVDD
PAVSS
B3.3VD
VDDH
VSSH
AVDD3_AVSP2
AVSS3_BG_ASS
VD1.8
VDDL
VSSL
DELETE OPTION
MCAD(0:7)
MCA(0:21)
DDR_MD(0:31)
DDR_MA(0:11)
DDR_DQM(0:3)
DDR_DQS(3)
DDR_DQS(2)
BA1
MVREF
MCLK0#
MCLK0
VDDL
VSSL
CE
CAS#
CS0#
BA0
WE#
RAS#
CKE
DELETE OPTION
DIN(0:23)
7119_DVS
7119_DHS
DHS_3EX
DVS_3EX
7119_CLK
CLK_3EX
OE_3EX
+5V_ST
SDA1
SCL1
RST_M
DNIE_RIN(0:9)
DNIE_GIN(0:9)
DNIE_BIN(0:9)
VDDH
VD1.8
VDDMQ
PC_V
IC0502
SVP EX-62
PC_H
PLF2
PAVSS2
PAVDD2
PAVSS1
MLF1
PAVDD1
PDVSS
PAVDD
PAVSS
PDVDD
PC_G
SUB_Y_CVBS
MAIN_Y_CVBS
DDR_DQS(0)
COMP_Y
DELETE OPTION
7119_MONITOROUT
8425_MONITOROUT
AVSS_ADC1
AVSS_ADC1
AVDD_ADC1
AVSS_ADC2
AVDD_ADC2
VDDH_CPU
DDR_DQS(1)
DOWNLOAD
OE
VDDH
GPIO1_EX
AVSS3_BG_ASS
AVDD3_AVSP2
PC_B
COMP_Pb
MAIN_C
AVSS_ADC2
AVSS_ADC3
PC_R
COMP_Pr
VD1.8
+3.3V_ST
VDDH_CPU
DELETE OPTION
8425_MONITOROUT

10-1-6 MICOM

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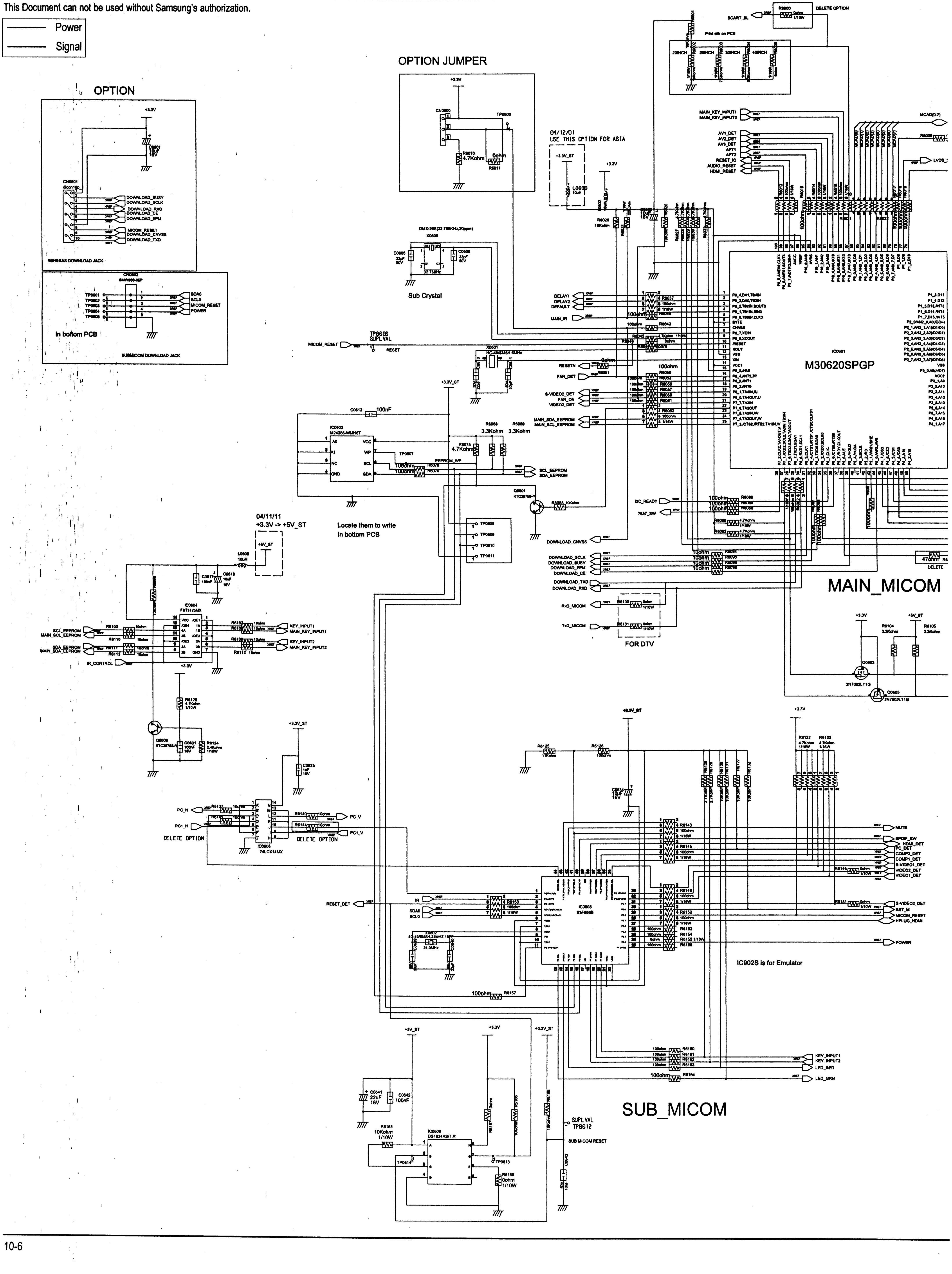
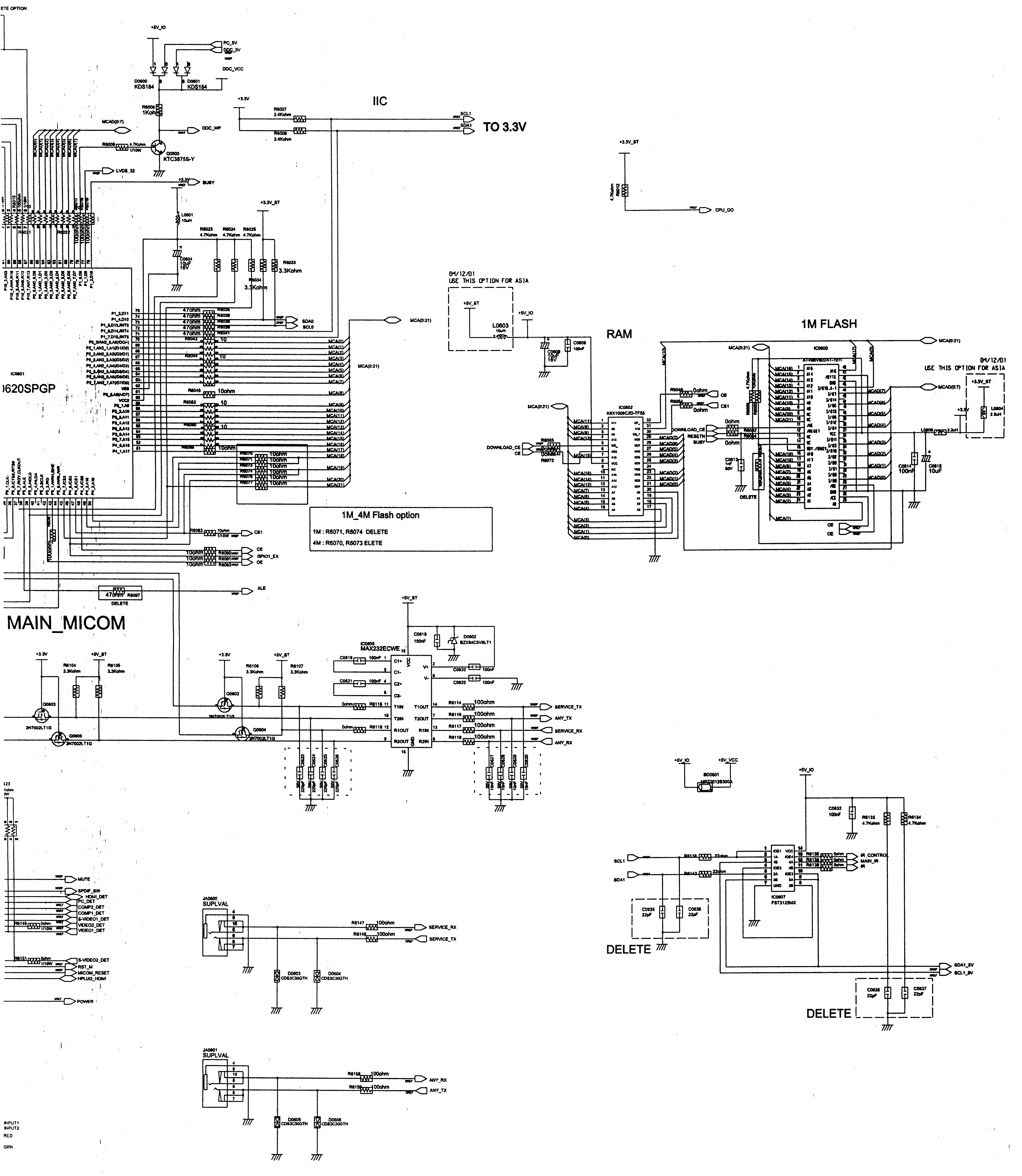
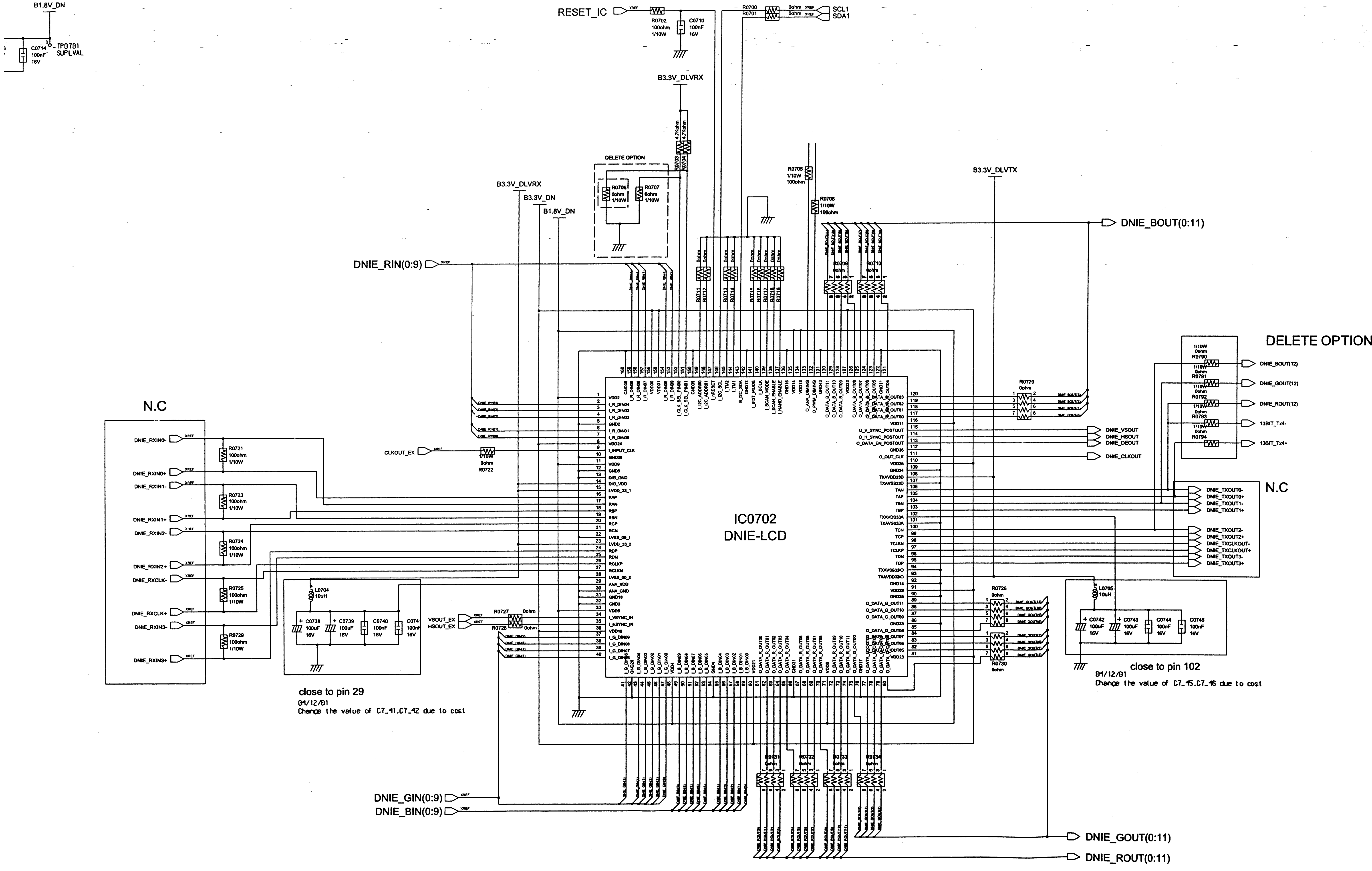

Power
Signal
OPTION
RENESAS DOWNLOAD JACK
CN0601
DOWNLOAD_BUSY
DOWNLOAD_SCLK
DOWNLOAD_RXD
DOWNLOAD_CE
DOWNLOAD_EPM
MICOM_RESET
DOWNLOAD_CNVSS
DOWNLOAD_TXD
CN0602
SDA0
SCL0
MICOM_RESET
POWER
In bottom PCB
SUBMICOM DOWNLOAD JACK
OPTION JUMPER
CN0600
TP0600
R6010 4.7Kohm
R6011 0ohm
04/12/01
USE THIS OPTION FOR ASIA
L0600
Sub Crystal
X0600
32.768kHz
DELETE OPTION
SCART_BL
Print silk on PCB
23INCH
26INCH
32INCH
40INCH
MAIN_KEY_INPUT1
MAIN_KEY_INPUT2
AV1_DET
AV2_DET
AV3_DET
AFT1
AFT2
RESET_IC
AUDIO_RESET
HDMI_RESET
MCAD(0:7)
LVDS_
DELAY1
DELAY2
DEFAULT
MAIN_IR
MICOM_RESET
TP0605
SUPLVAL
RESET
X0601
HC-49/SMSH 8MHz
RESETN
FAN_DET
S-VIDEO2_DET
FAN_ON
VIDEO2_DET
MAIN_SDA_EEPROM
MAIN_SCL_EEPROM
IC0601
M30620SPGP
IC0603
M24256-WMN6T
TP0607
EEPROM_WP
SCL_EEPROM
SDA_EEPROM
Q0601
KTC3875S-Y
I2C_READY
7657_SW
DOWNLOAD_CNVSS
DOWNLOAD_SCLK
DOWNLOAD_BUSY
DOWNLOAD_EPM
DOWNLOAD_CE
DOWNLOAD_TXD
DOWNLOAD_RXD
RxD_MICOM
TxD_MICOM
FOR DTV
DELETE
MAIN_MICOM
Q0603
Q0605
2N7002LT1G
04/11/11
+3.3V -> +5V_ST
Locate them to write
In bottom PCB
TP0608
TP0609
TP0610
TP0611
IC0604
FST3126MX
SCL_EEPROM
MAIN_SCL_EEPROM
SDA_EEPROM
MAIN_SDA_EEPROM
IR_CONTROL
KEY_INPUT1
MAIN_KEY_INPUT1
KEY_INPUT2
MAIN_KEY_INPUT2
Q0606
KTC3875S-Y
PC_H
PC1_H
DELETE OPTION
IC0606
74LCX14MX
PC_V
PC1_V
DELETE OPTION
RESET_DET
IR
SDA0
SCL0
X0602
24.0MHz
IC0608
S3F866B
MUTE
SPDIF_SW
HDMI_DET
PC_DET
COMP2_DET
COMP1_DET
S-VIDEO1_DET
VIDEO2_DET
VIDEO1_DET
S-VIDEO2_DET
RST_M
MICOM_RESET
HPLUG_HDMI
POWER
IC902S Is for Emulator
KEY_INPUT1
KEY_INPUT2
LED_RED
LED_GRN
SUB_MICOM
IC0609
DS1834AS/T.R
TP0612
TP0613
TP0614
SUB MICOM RESET
+3.3V
+5V_ST
+3.3V_ST


IIC
TO 3.3V
RAM
1M FLASH
MAIN_MICOM
1M_4M Flash option
1M : R8071, R6074 DELETE
4M : R6070, R6073 ELETE
04/12/01
USE THIS OPTION FOR ASIA
IC0601
0620SPGP
IC0602
K6X1008C2D-TF55
IC0600
IC0605
MAX232ECWE
IC0607
FST3125MX
Q0600
KTC3875S-Y
D0600
KDS184
D0601
KDS184
Q0603
2N7002LT1G
Q0604
2N7002LT1G
Q0605
2N7002LT1G
Q0602
JA0600
SUPLVAL
JA0601
SUPLVAL
BD0601
+5V_IO
+3.3V
+3.3V_ST
+5V_ST
+5V_VCC
PC_5V
DDC_5V
DDC_VCC
DDC_WP
MCAD(0:7)
MCA(0:21)
LVDS_32
BUSY
SCL1
SDA1
SDA0
SCL0
CPU_GO
DOWNLOAD_CE
CE
OE
CS1
RESETN
GPIO1_EX
ALE
DELETE
SERVICE_TX
ANY_TX
SERVICE_RX
ANY_RX
IR_CONTROL
MAIN_IR
IR
SDA1_5V
SCL1_5V
MUTE
SPDIF_SW
HDMI_DET
PC_DET
COMP2_DET
COMP1_DET
S-VIDEO1_DET
VIDEO2_DET
VIDEO1_DET
S-VIDEO2_DET
RST_M
MICOM_RESET
HPLUG_HDMI
POWER
INPUT1
INPUT2
RED
GRN


B1.8V_DN
C0714 100nF 16V
TPG701 SUPLVAL
RESET_IC
R0702 100ohm 1/10W
C0710 100nF 16V
R0700
R0701
0ohm
SCL1
SDA1
B3.3V_DLVRX
R0703 4.7Kohm
R0704 4.7Kohm
DELETE OPTION
R0706 0ohm 1/10W
R0707 0ohm 1/10W
B3.3V_DLVRX
B3.3V_DN
B1.8V_DN
R0705 1/10W 100ohm
R0708 1/10W 100ohm
B3.3V_DLVTX
DNIE_BOUT(0:11)
DNIE_RIN(0:9)
R0709 0ohm
R0710 0ohm
R0711
R0712
R0713
R0714
R0715
R0716
R0717
R0718
R0719
DELETE OPTION
R0790 1/10W 0ohm
R0791 1/10W 0ohm
R0792 1/10W 0ohm
R0793 1/10W 0ohm
R0794
DNIE_BOUT(12)
DNIE_GOUT(12)
DNIE_ROUT(12)
13BIT_Tx4-
13BIT_Tx4+
R0720 0ohm
N.C
DNIE_RXIN0-
DNIE_RXIN0+
DNIE_RXIN1-
DNIE_RXIN1+
DNIE_RXIN2-
DNIE_RXIN2+
DNIE_RXCLK-
DNIE_RXCLK+
DNIE_RXIN3-
DNIE_RXIN3+
R0721 100ohm 1/10W
R0723 100ohm 1/10W
R0724 100ohm 1/10W
R0725 100ohm 1/10W
R0729 100ohm 1/10W
CLKOUT_EX
R0722 1/10W 0ohm
DNIE_VSOUT
DNIE_HSOUT
DNIE_DEOUT
DNIE_CLKOUT
N.C
DNIE_TXOUT0-
DNIE_TXOUT0+
DNIE_TXOUT1-
DNIE_TXOUT1+
DNIE_TXOUT2-
DNIE_TXOUT2+
DNIE_TXCLKOUT-
DNIE_TXCLKOUT+
DNIE_TXOUT3-
DNIE_TXOUT3+
IC0702
DNIE-LCD
L0704 10uH
C0738 100uF 16V
C0739 100uF 16V
C0740 100nF 16V
C0741 100nF 16V
close to pin 29
01/12/01
Change the value of C7_41.C7_42 due to cost
VSOUT_EX
HSOUT_EX
R0727 0ohm
R0728 0ohm
R0726 0ohm
R0730 0ohm
L0705 10uH
C0742 100uF 16V
C0743 100uF 16V
C0744 100nF 16V
C0745 100nF 16V
close to pin 102
01/12/01
Change the value of C7_45.C7_46 due to cost
R0731 0ohm
R0732 0ohm
R0733 0ohm
R0734 0ohm
DNIE_GIN(0:9)
DNIE_BIN(0:9)
DNIE_GOUT(0:11)
DNIE_ROUT(0:11)

10-1-6 MICOM

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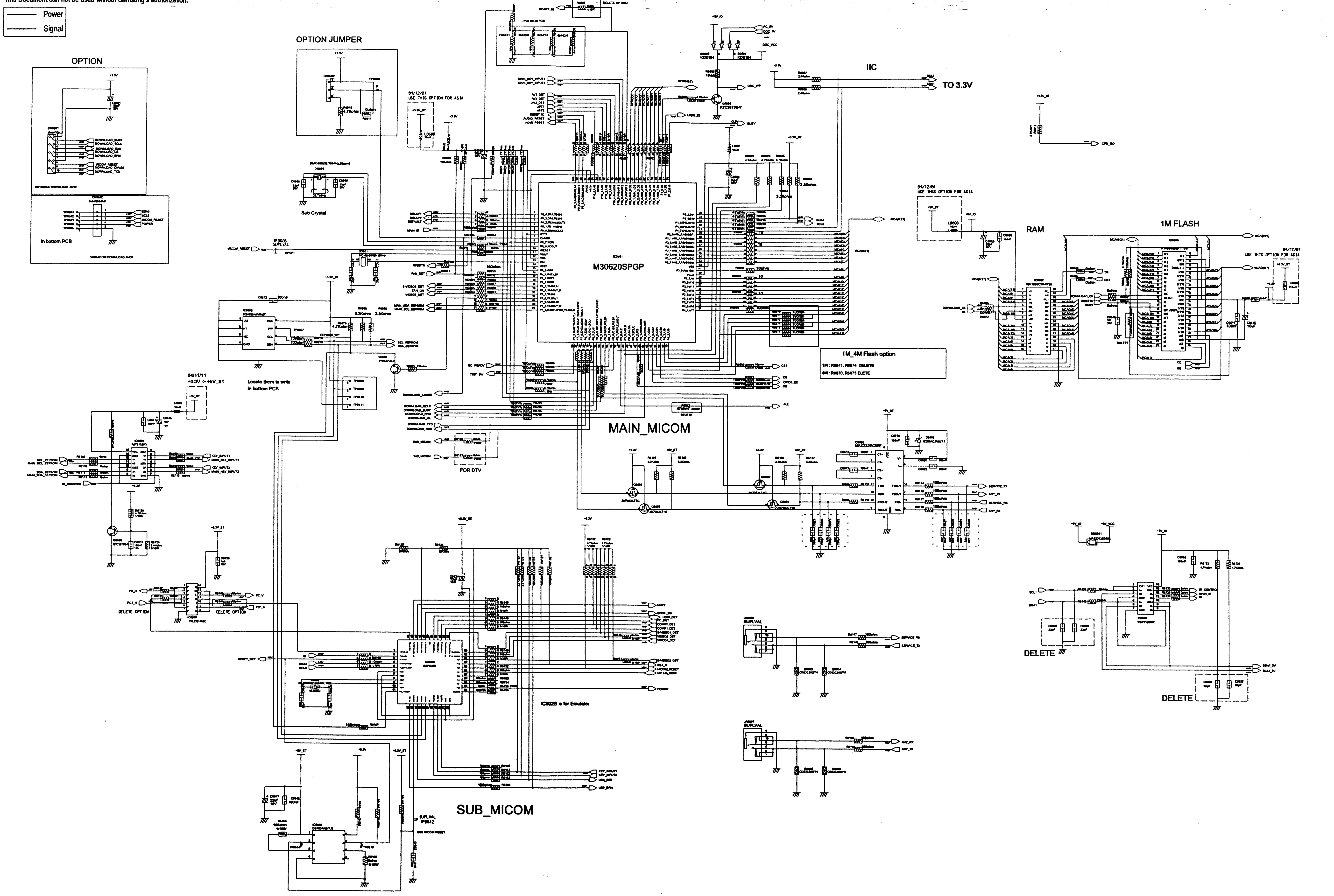
Power
Signal
OPTION
In bottom PCB
OPTION JUMPER
Sub Crystal
04/12/01
USE THIS OPTION FOR ASIA
IIC
TO 3.3V
M30620SPGP
MAIN_MICOM
RAM
1M FLASH
1M_4M Flash option
1M : R6071, R6074 DELETE
4M : R6070, R6073 ELETE
Locate them to write
In bottom PCB
04/11/11
+3.3V -> +5V_ST
FOR DTV
DELETE OPTION
IC8025 is for Emulator
SUB_MICOM
DELETE
DELETE

10-1-7 DNIe Lite

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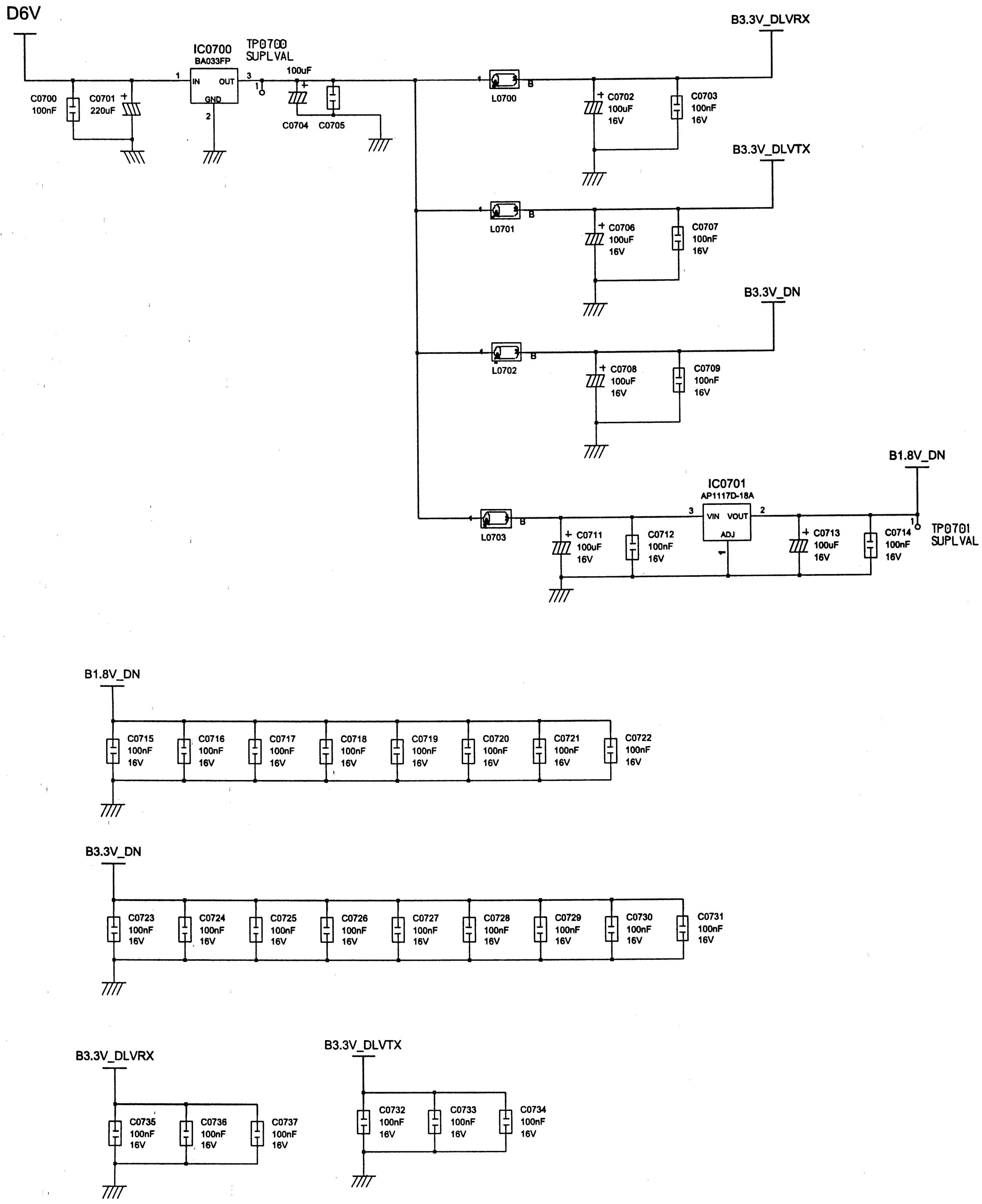
—— Power

—— Signal


D6V
IC0700
BA033FP
IN
OUT
GND
1
2
3
TP0700
SUPLVAL
100uF
C0700
100nF
C0701
220uF
C0704
C0705
B3.3V_DLVRX
L0700
C0702
100uF
16V
C0703
100nF
16V
B3.3V_DLVTX
L0701
C0706
100uF
16V
C0707
100nF
16V
B3.3V_DN
L0702
C0708
100uF
16V
C0709
100nF
16V
B1.8V_DN
IC0701
AP1117D-18A
VIN
VOUT
ADJ
L0703
C0711
100uF
16V
C0712
100nF
16V
C0713
100uF
16V
C0714
100nF
16V
TP0701
SUPLVAL
B1.8V_DN
C0715 100nF 16V
C0716 100nF 16V
C0717 100nF 16V
C0718 100nF 16V
C0719 100nF 16V
C0720 100nF 16V
C0721 100nF 16V
C0722 100nF 16V
B3.3V_DN
C0723 100nF 16V
C0724 100nF 16V
C0725 100nF 16V
C0726 100nF 16V
C0727 100nF 16V
C0728 100nF 16V
C0729 100nF 16V
C0730 100nF 16V
C0731 100nF 16V
B3.3V_DLVRX
C0735 100nF 16V
C0736 100nF 16V
C0737 100nF 16V
B3.3V_DLVTX
C0732 100nF 16V
C0733 100nF 16V
C0734 100nF 16V

10-1-7 DNIe Lite

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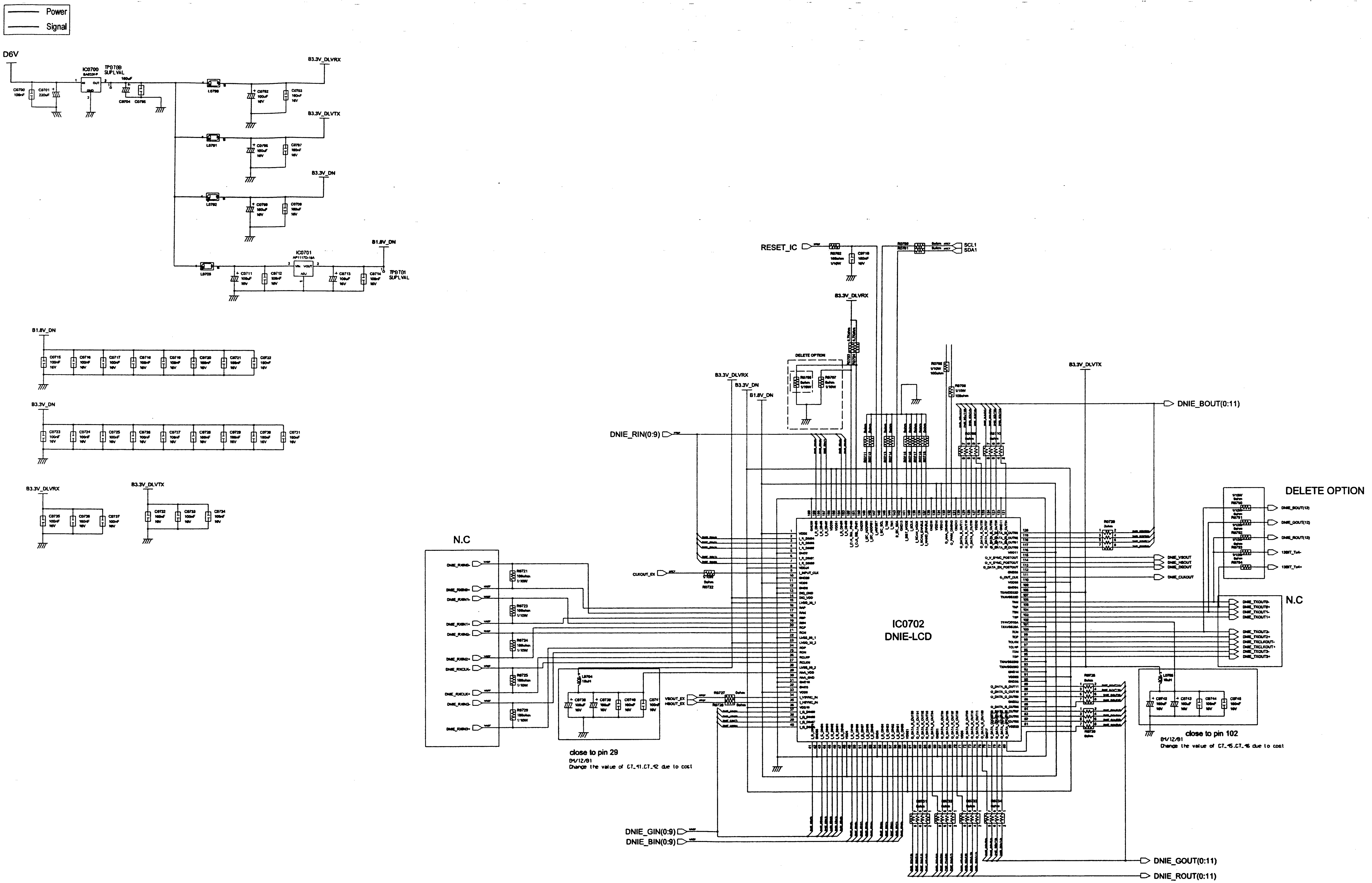
Power
Signal
D6V
IC0700
TP0709
SUPLVAL
B3.3V_DLVRX
B3.3V_DLVTX
B3.3V_DN
B1.8V_DN
IC0701
TP0701
SUPLVAL
RESET_IC
SCL1
SDA1
DELETE OPTION
DNIE_RIN(0:9)
DNIE_BOUT(0:11)
DELETE OPTION
N.C
CLKOUT_EX
IC0702
DNIE-LCD
N.C
VSOUT_EX
HSOUT_EX
close to pin 29
04/12/01
Change the value of CT_41.CT_42 due to cost
close to pin 102
04/12/01
Change the value of C7_45.C7_46 due to cost
DNIE_GIN(0:9)
DNIE_BIN(0:9)
DNIE_GOUT(0:11)
DNIE_ROUT(0:11)

10-1-8 JACK IN/OUT

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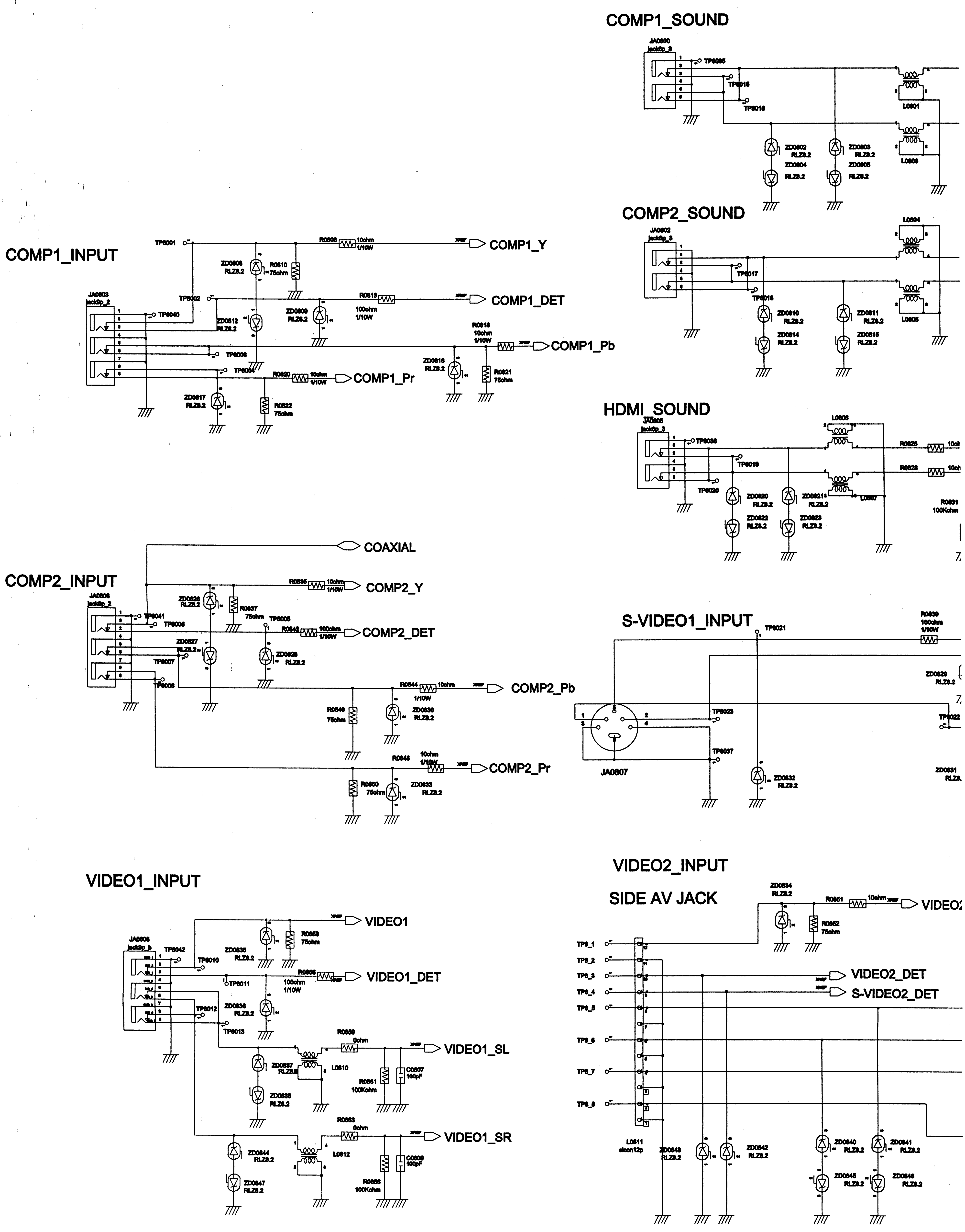
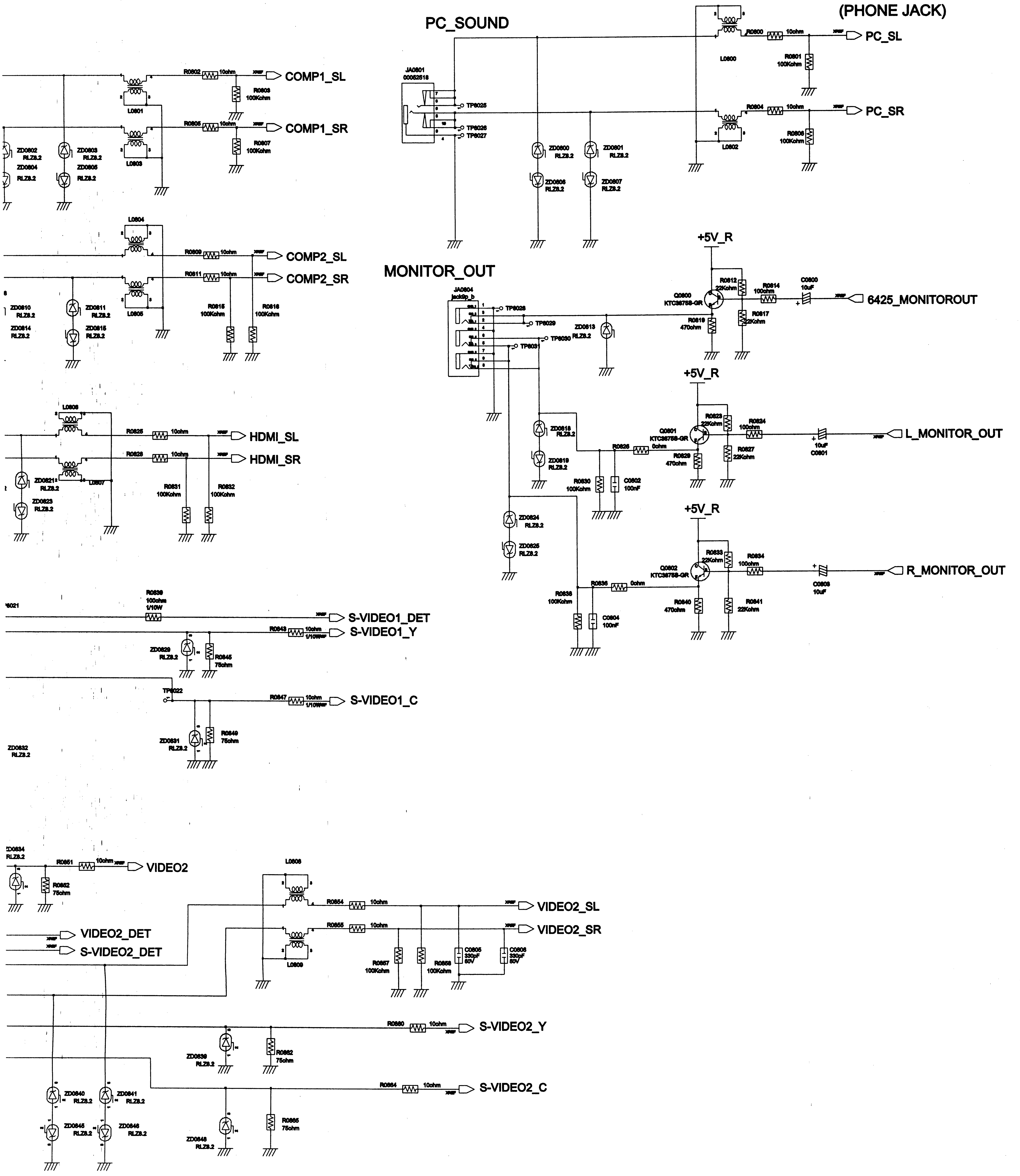
Power

Signal



COMP1_SOUND
JA0800
jack8p_3
TP8035
TP8015
TP8016
L0801
L0803
ZD0802
ZD0803
ZD0804
ZD0805
RLZ8.2
COMP2_SOUND
JA0802
TP8017
TP8018
L0804
L0805
ZD0810
ZD0811
ZD0814
ZD0815
COMP1_INPUT
TP8001
TP8002
TP8040
TP8003
TP8004
JA0803
jack8p_2
R0808
10ohm
1/10W
COMP1_Y
ZD0808
R0810
75ohm
R0813
100ohm
COMP1_DET
ZD0809
ZD0812
R0818
COMP1_Pb
R0820
COMP1_Pr
ZD0816
R0821
ZD0817
R0822
HDMI_SOUND
JA0805
jack8p_3
TP8036
TP8019
TP8020
L0806
L0807
ZD0820
ZD0821
ZD0822
ZD0823
R0825
R0828
R0831
100Kohm
COAXIAL
COMP2_INPUT
JA0806
jack8p_2
TP8041
TP8006
TP8005
TP8007
TP8008
R0835
COMP2_Y
ZD0826
R0837
R0842
COMP2_DET
ZD0827
ZD0828
R0844
COMP2_Pb
R0846
ZD0830
R0848
COMP2_Pr
R0850
ZD0833
S-VIDEO1_INPUT
TP8021
TP8023
TP8037
TP8022
JA0807
R0839
ZD0829
ZD0831
ZD0832
VIDEO1_INPUT
JA0808
jack9p_b
TP8042
TP8010
TP8011
TP8012
TP8013
VIDEO1
ZD0835
R0853
R0856
VIDEO1_DET
ZD0836
R0859
0ohm
VIDEO1_SL
ZD0837
L0810
R0861
C0807
100pF
ZD0838
R0863
VIDEO1_SR
ZD0844
L0812
R0866
C0809
ZD0847
VIDEO2_INPUT
SIDE AV JACK
ZD0834
R0851
R0852
VIDEO2
TP8_1
TP8_2
TP8_3
TP8_4
TP8_5
TP8_6
TP8_7
TP8_8
VIDEO2_DET
S-VIDEO2_DET
L0811
slcon12p
ZD0843
ZD0842
ZD0840
ZD0841
ZD0845
ZD0846



PC_SOUND
(PHONE JACK)
JA0601
00052518
TP6025
TP6026
TP6027
L0600
L0602
R0600 10ohm
R0601 100Kohm
R0604 10ohm
R0606 100Kohm
PC_SL
PC_SR
ZD0600 RLZ8.2
ZD0601 RLZ8.2
ZD0606 RLZ8.2
ZD0607 RLZ8.2
R0602 10ohm
R0603 100Kohm
R0605 10ohm
R0607 100Kohm
L0601
L0603
COMP1_SL
COMP1_SR
ZD0602 RLZ8.2
ZD0603 RLZ8.2
ZD0604 RLZ8.2
ZD0605 RLZ8.2
L0604
L0605
R0609 10ohm
R0611 10ohm
R0615 100Kohm
R0616 100Kohm
COMP2_SL
COMP2_SR
ZD0610 RLZ8.2
ZD0611 RLZ8.2
ZD0614 RLZ8.2
ZD0615 RLZ8.2
MONITOR_OUT
JA0604
jack9p_b
TP6028
TP6029
TP6030
TP6031
ZD0613 RLZ8.2
+5V_R
Q0600
KTC3875S-GR
R0612 22Kohm
R0614 100ohm
R0617 22Kohm
R0619 470ohm
C0600 10uF
6425_MONITOROUT
ZD0618 RLZ8.2
ZD0619 RLZ8.2
+5V_R
Q0601
KTC3875S-GR
R0623 22Kohm
R0624 100ohm
R0626 0ohm
R0627 22Kohm
R0629 470ohm
R0630 100Kohm
C0602 100nF
10uF
C0601
L_MONITOR_OUT
ZD0624 RLZ8.2
ZD0625 RLZ8.2
+5V_R
Q0602
KTC3875S-GR
R0633 22Kohm
R0634 100ohm
R0636 0ohm
R0638 100Kohm
C0604 100nF
R0640 470ohm
R0641 22Kohm
C0603 10uF
R_MONITOR_OUT
L0606
L0607
R0625 10ohm
R0628 10ohm
R0631 100Kohm
R0632 100Kohm
HDMI_SL
HDMI_SR
ZD0621 RLZ8.2
ZD0623 RLZ8.2
TP6021
R0639 100ohm 1/10W
S-VIDEO1_DET
R0643 10ohm 1/10W
S-VIDEO1_Y
ZD0629 RLZ8.2
R0645 75ohm
TP6022
R0647 10ohm 1/10W
S-VIDEO1_C
ZD0631 RLZ8.2
R0649 75ohm
ZD0632 RLZ8.2
ZD0634 RLZ8.2
R0651 10ohm
R0652 75ohm
VIDEO2
L0608
L0609
R0654 10ohm
R0655 10ohm
VIDEO2_SL
VIDEO2_SR
R0657 100Kohm
R0658 100Kohm
C0605 330pF 50V
C0606 330pF 50V
VIDEO2_DET
S-VIDEO2_DET
R0660 10ohm
S-VIDEO2_Y
ZD0639 RLZ8.2
R0662 75ohm
R0664 10ohm
S-VIDEO2_C
ZD0640 RLZ8.2
ZD0641 RLZ8.2
ZD0645 RLZ8.2
ZD0646 RLZ8.2
ZD0648 RLZ8.2
R0665 75ohm

10-1-9 CONTROL_POWER CONNECTOR

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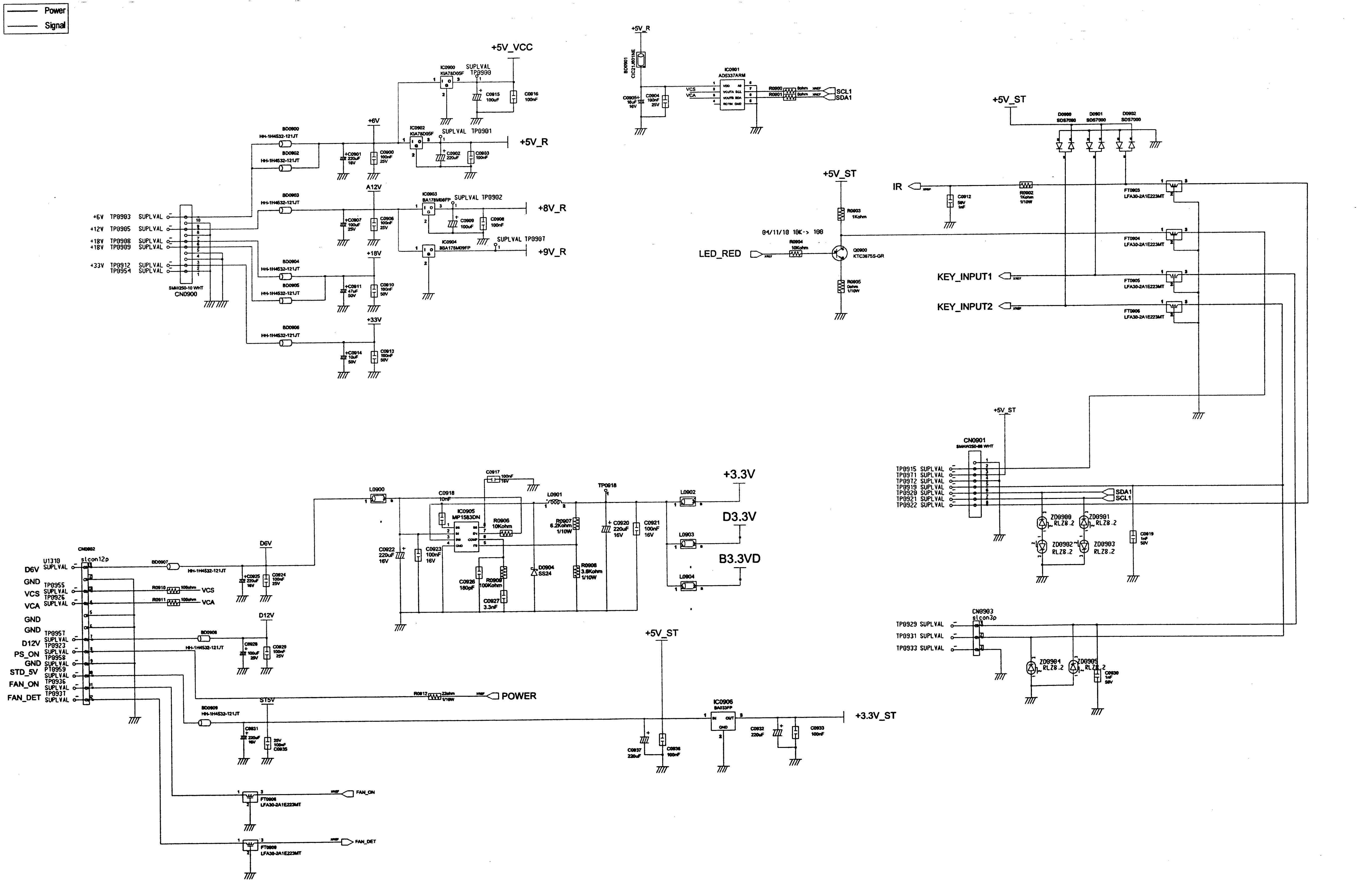
Power
Signal
+5V_VCC
IC0900 KIA78D05F
SUPLVAL TP0900
C0915 100uF
C0916 100nF
+6V
IC0902 KIA78D05F
SUPLVAL TP0901
+5V_R
C0901 220uF 16V
C0900 100nF 25V
C0902 220uF
C0903 100nF
BD0900 HH-1H4532-121JT
BD0902 HH-1H4532-121JT
BD0903 HH-1H4532-121JT
BD0904 HH-1H4532-121JT
BD0905 HH-1H4532-121JT
BD0906 HH-1H4532-121JT
A12V
IC0903 BA178M08FP
SUPLVAL TP0902
+8V_R
C0907 100uF 25V
C0906 100nF 25V
C0909 100uF
C0908 100nF
SUPLVAL TP0907
IC0904 BA178M09FP
+9V_R
+18V
C0911 47uF 50V
C0910 100nF 50V
+33V
C0914 10uF 50V
C0913 100nF 50V
+6V TP0903 SUPLVAL
+12V TP0905 SUPLVAL
+18V TP0908 SUPLVAL
+18V TP0909 SUPLVAL
+33V TP0912 SUPLVAL
TP0954 SUPLVAL
SMW250-10 WHT
CN0900
+5V_R
BD0901 CIC21J601NE
IC0901 AD5337ARM
C0905 10uF 16V
C0904 100nF 25V
VCS
VCA
R0900 0ohm
R0901 0ohm
SCL1
SDA1
+5V_ST
D0900 SDS7000
D0901 SDS7000
D0902 SDS7000
IR
C0912 50V 1nF
R0902 1Kohm 1/10W
FT0903 LFA30-2A1E223MT
FT0904 LFA30-2A1E223MT
FT0905 LFA30-2A1E223MT
FT0906 LFA30-2A1E223MT
+5V_ST
R0903 1Kohm
04/11/10 10K -> 100
R0904 10Kohm
LED_RED
Q0900 KTC3875S-GR
R0905 0ohm 1/10W
KEY_INPUT1
KEY_INPUT2
+5V_ST
CN0901 SMAW250-08 WHT
TP0915 SUPLVAL
TP0971 SUPLVAL
TP0972 SUPLVAL
TP0919 SUPLVAL
TP0920 SUPLVAL
TP0921 SUPLVAL
TP0922 SUPLVAL
SDA1
SCL1
ZD0900 RLZ8.2
ZD0901 RLZ8.2
ZD0902 RLZ8.2
ZD0903 RLZ8.2
C0919 1nF 50V
+3.3V
D3.3V
B3.3VD
L0900
L0901
L0902
L0903
L0904
TP0918
C0917 100nF 16V
C0918 10nF
IC0905 MP1583DN
R0906 10Kohm
R0907 6.2Kohm 1/10W
C0920 220uF 16V
C0921 100nF 16V
C0922 220uF 16V
C0923 100nF 16V
C0926 180pF
R0909 100Kohm
C0927 3.3nF
D0904 SS24
R0908 3.6Kohm 1/10W
CN0902
U1310 slcon12p
D6V SUPLVAL
GND
VCS TP0955 SUPLVAL
VCA TP0926 SUPLVAL
GND
GND
D12V TP0957 SUPLVAL
PS_ON TP0923 SUPLVAL
GND TP0958 SUPLVAL
STD_5V PT0959 SUPLVAL
FAN_ON TP0936 SUPLVAL
FAN_DET TP0937 SUPLVAL
BD0907 HH-1H4532-121JT
D6V
C0925 220uF 16V
C0924 100nF 25V
R0910 100ohm VCS
R0911 100ohm VCA
D12V
BD0908 HH-1H4532-121JT
C0928 100uF 25V
C0929 100nF 25V
R0912 22ohm 1/10W
POWER
ST5V
BD0909 HH-1H4532-121JT
C0931 220uF 16V
C0935 100nF 25V
+5V_ST
IC0906 BA033FP
+3.3V_ST
C0937 220uF
C0936 100nF
C0932 220uF
C0933 100nF
FT0908 LFA30-2A1E223MT
FAN_ON
FT0909 LFA30-2A1E223MT
FAN_DET
CN0903 slcon3p
TP0929 SUPLVAL
TP0931 SUPLVAL
TP0933 SUPLVAL
ZD0904 RLZ8.2
ZD0905 RLZ8.2
C0930 1nF 50V

10-1-8 JACK IN/OUT

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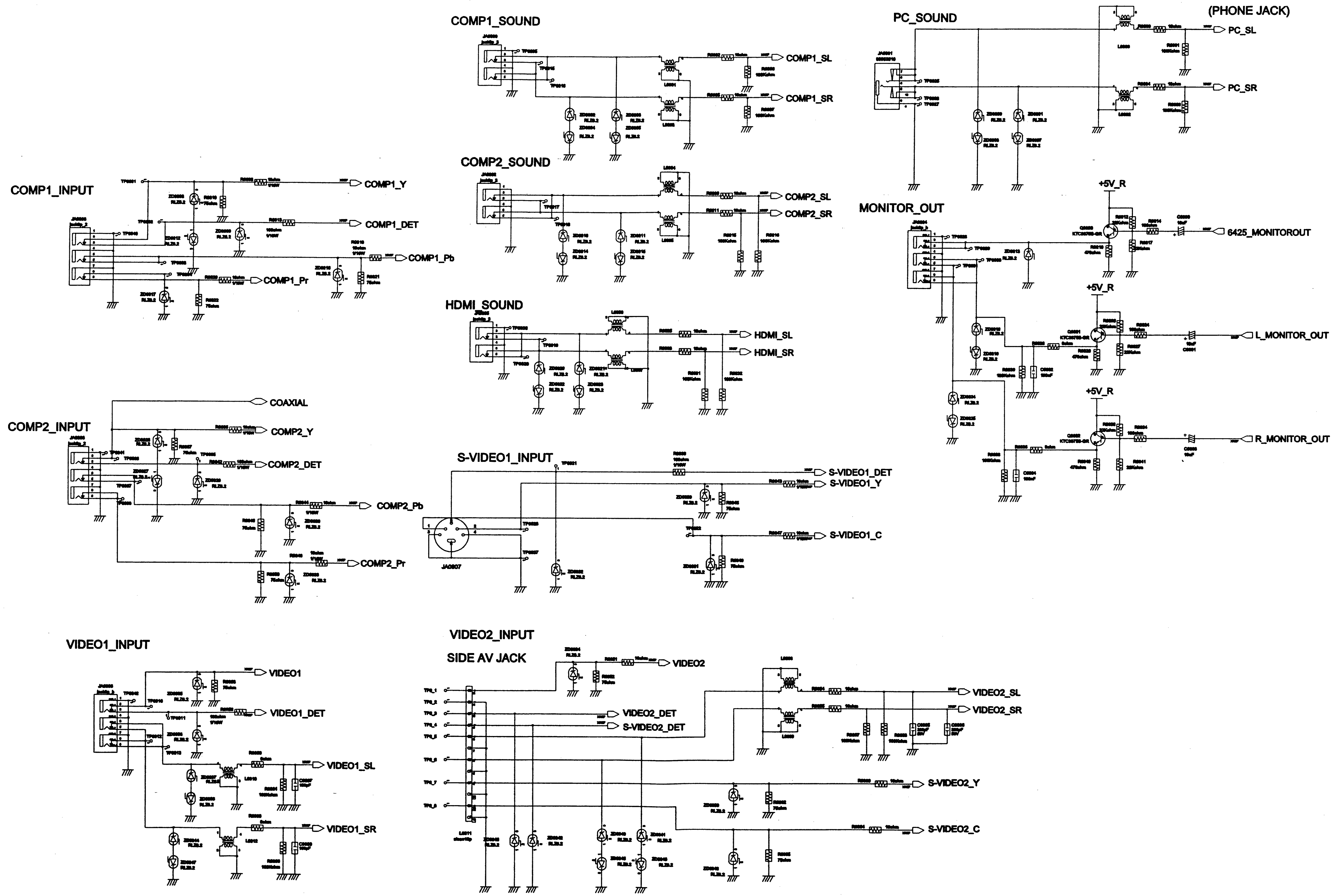
——— Power
——— Signal


COMP1_SOUND
COMP1_SL
COMP1_SR
PC_SOUND
(PHONE JACK)
PC_SL
PC_SR
COMP2_SOUND
COMP2_SL
COMP2_SR
COMP1_INPUT
COMP1_Y
COMP1_DET
COMP1_Pb
COMP1_Pr
MONITOR_OUT
+5V_R
6425_MONITOROUT
L_MONITOR_OUT
R_MONITOR_OUT
HDMI_SOUND
HDMI_SL
HDMI_SR
COAXIAL
COMP2_INPUT
COMP2_Y
COMP2_DET
COMP2_Pb
COMP2_Pr
S-VIDEO1_INPUT
S-VIDEO1_DET
S-VIDEO1_Y
S-VIDEO1_C
JA0807
VIDEO1_INPUT
VIDEO1
VIDEO1_DET
VIDEO1_SL
VIDEO1_SR
VIDEO2_INPUT
SIDE AV JACK
VIDEO2
VIDEO2_SL
VIDEO2_SR
VIDEO2_DET
S-VIDEO2_DET
S-VIDEO2_Y
S-VIDEO2_C

10-1-10 AUDIO PART

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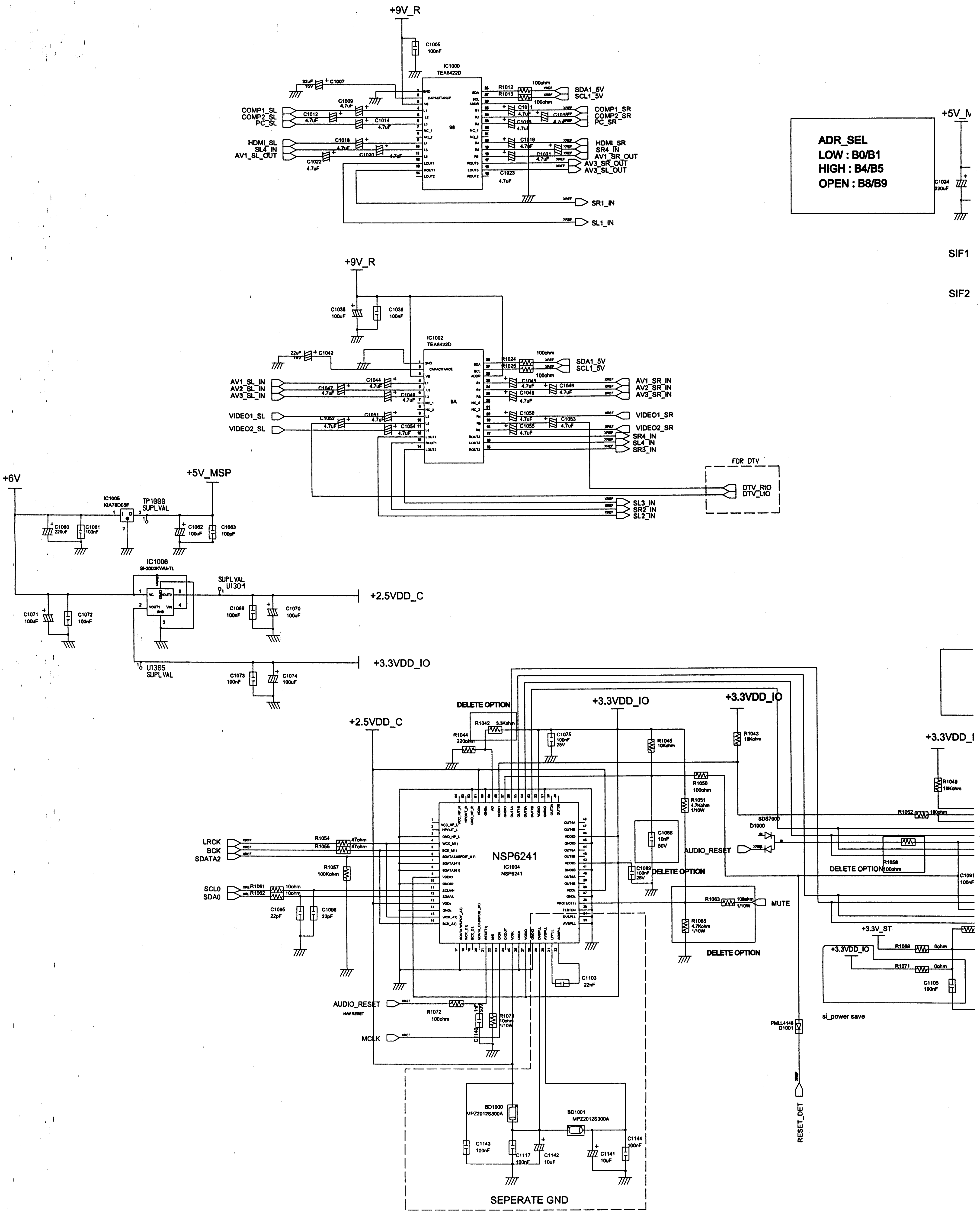
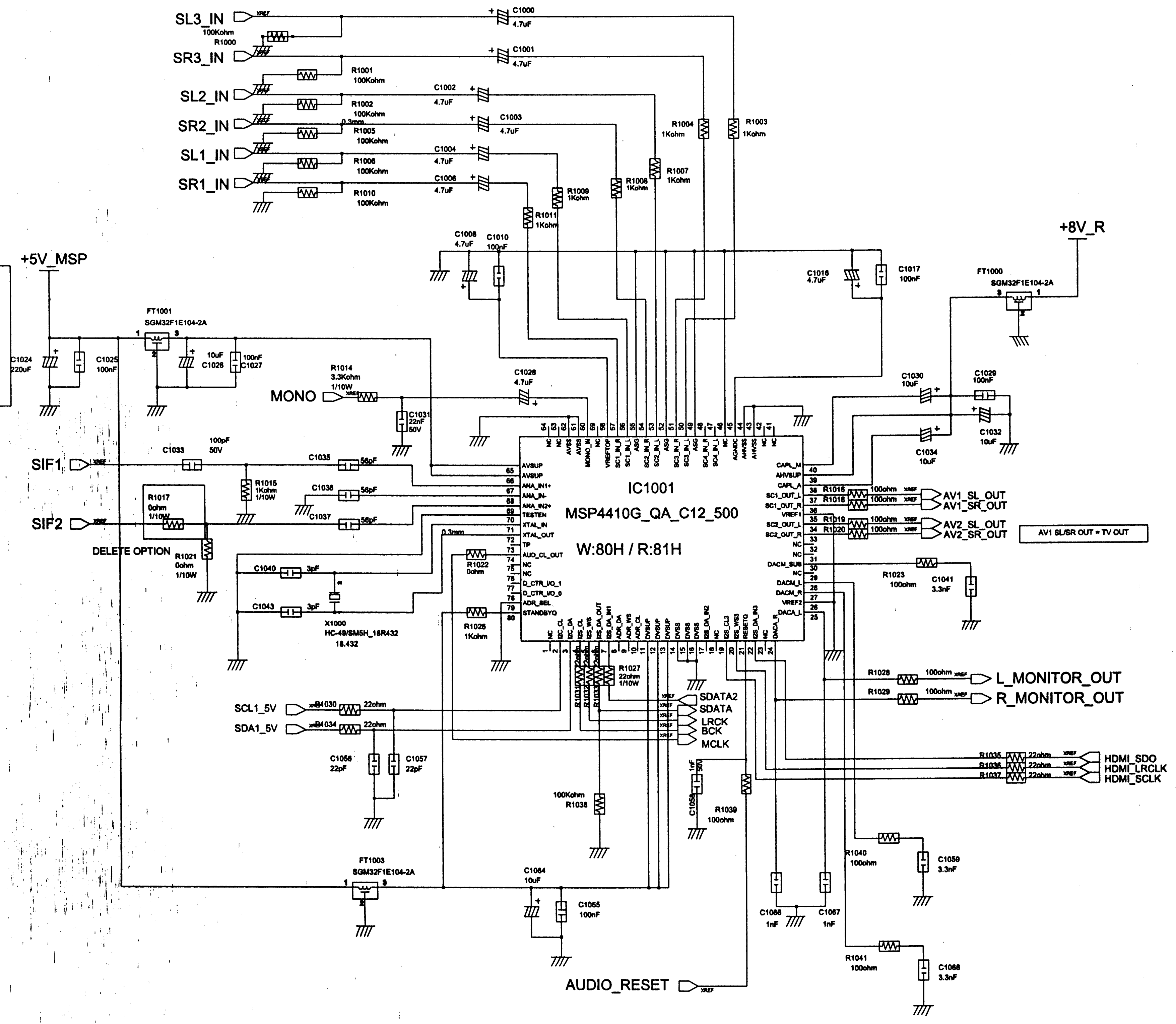
Power

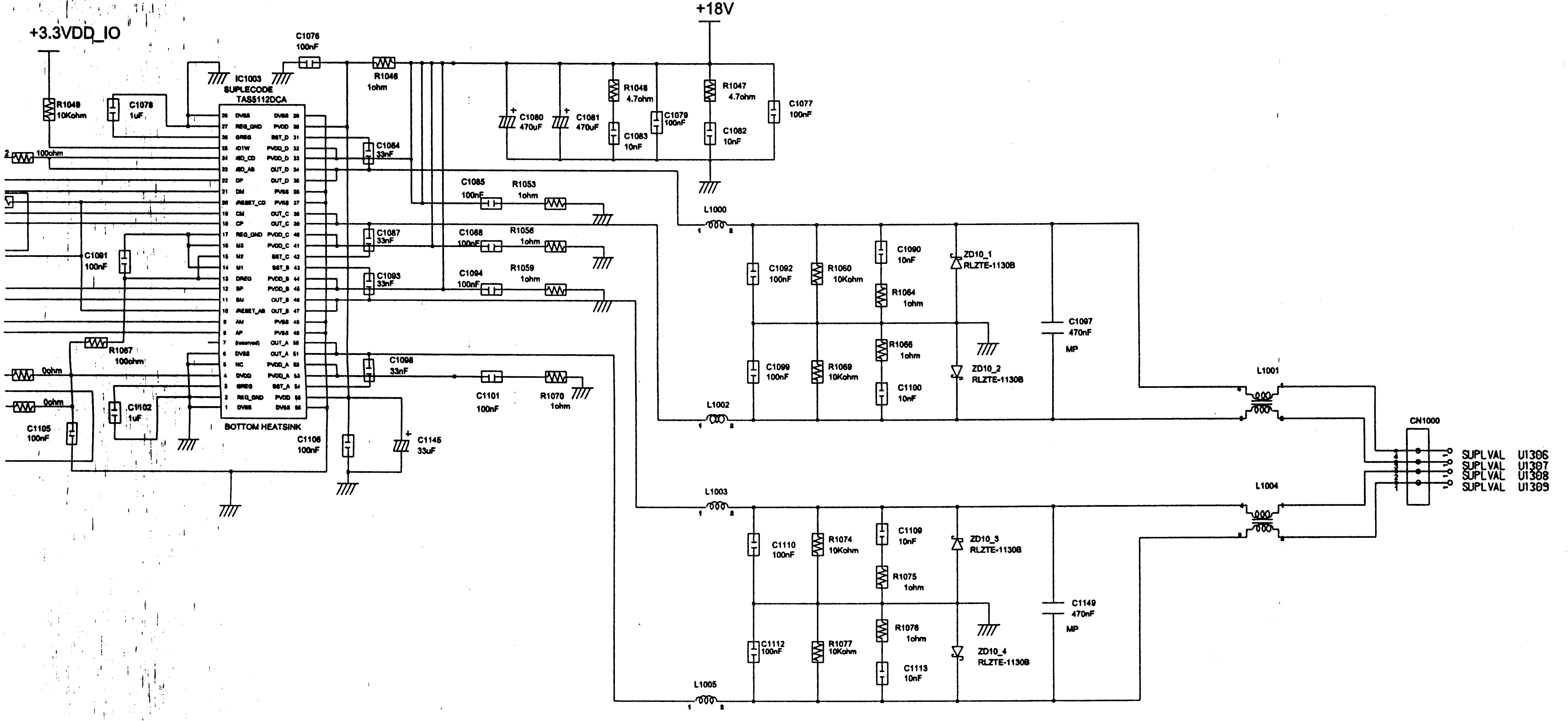
Signal

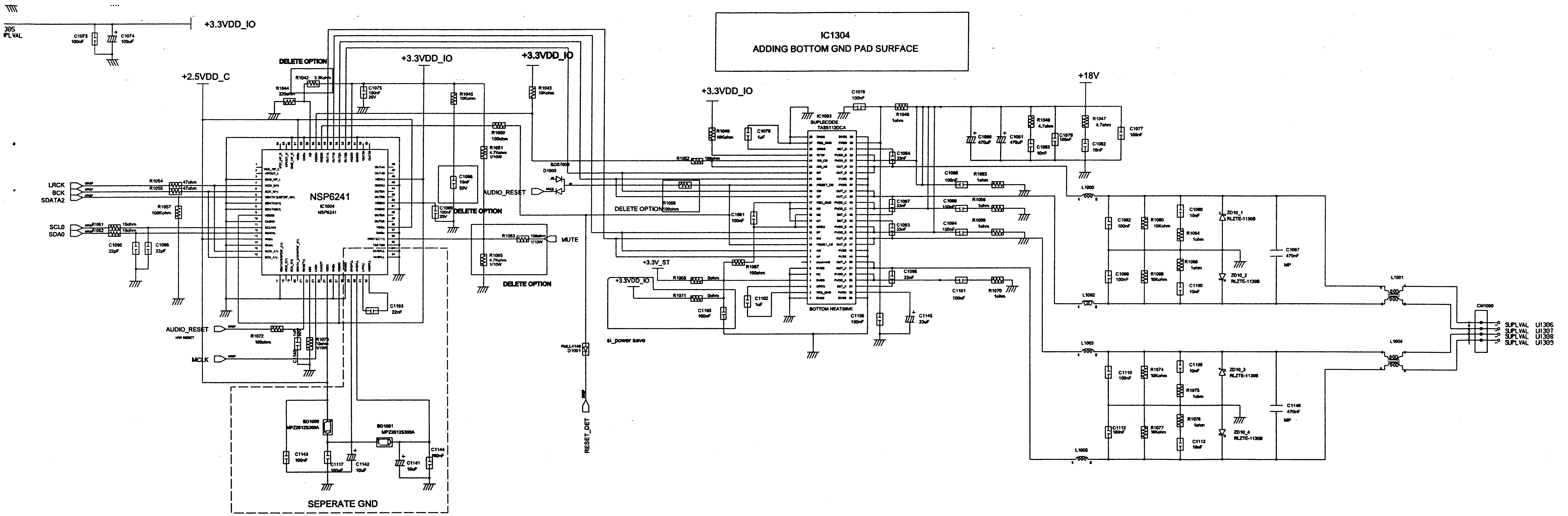

+9V_R
C1005 100nF
IC1000 TEA6422D
C1007 22uF 16V
C1009 4.7uF
R1012
R1013
100ohm
SDA1_5V
SCL1_5V
COMP1_SL
COMP2_SL
PC_SL
C1012 4.7uF
C1014 4.7uF
C1011 4.7uF
C1013 4.7uF
C1015 4.7uF
COMP1_SR
COMP2_SR
PC_SR
HDMI_SL
SL4_IN
AV1_SL_OUT
C1018 4.7uF
C1020 4.7uF
C1022 4.7uF
C1019 4.7uF
C1021 4.7uF
C1023 4.7uF
HDMI_SR
SR4_IN
AV1_SR_OUT
AV3_SR_OUT
AV3_SL_OUT
SR1_IN
SL1_IN
ADR_SEL
LOW : B0/B1
HIGH : B4/B5
OPEN : B8/B9
+5V_M
C1024 220uF
SIF1
SIF2
+9V_R
C1038 100uF
C1039 100nF
IC1002 TEA6422D
C1042 22uF 16V
R1024
R1025
100ohm
SDA1_5V
SCL1_5V
AV1_SL_IN
AV2_SL_IN
AV3_SL_IN
C1044 4.7uF
C1047 4.7uF
C1049 4.7uF
C1045 4.7uF
C1046 4.7uF
C1048 4.7uF
AV1_SR_IN
AV2_SR_IN
AV3_SR_IN
VIDEO1_SL
VIDEO2_SL
C1051 4.7uF
C1052 4.7uF
C1054 4.7uF
C1050 4.7uF
C1053 4.7uF
C1055 4.7uF
VIDEO1_SR
VIDEO2_SR
SR4_IN
SL4_IN
SR3_IN
FOR DTV
DTV_RtO
DTV_LtO
SL3_IN
SR2_IN
SL2_IN
+6V
+5V_MSP
IC1005 KIA78D05F
TP1000 SUPLVAL
C1060 220uF
C1061 100nF
C1062 100uF
C1063 100pF
IC1006 SI-3002KWM-TL
SUPLVAL U1304
+2.5VDD_C
C1071 100uF
C1072 100nF
C1069 100nF
C1070 100uF
U1305 SUPLVAL
+3.3VDD_IO
C1073 100nF
C1074 100uF
DELETE OPTION
R1042 3.3Kohm
R1044 220ohm
+2.5VDD_C
+3.3VDD_IO
C1075 100nF 25V
R1045 10Kohm
+3.3VDD_IO
R1043 10Kohm
+3.3VDD_I
R1050 100ohm
R1051 4.7Kohm 1/10W
R1049 10Kohm
R1052 100ohm
SDS7000 D1000
LRCK
BCK
SDATA2
R1054 47ohm
R1055 47ohm
R1057 100Kohm
NSP6241
IC1004 NSP6241
C1086 10nF 50V
AUDIO_RESET
C1089 100nF 25V
DELETE OPTION
R1058 100ohm
DELETE OPTION
C1091 100nF
SCL0
SDA0
R1061 10ohm
R1062 10ohm
C1095 22pF
C1096 22pF
R1063 100ohm 1/10W
MUTE
R1065 4.7Kohm 1/10W
DELETE OPTION
+3.3V_ST
+3.3VDD_IO
R1068 0ohm
R1071 0ohm
C1105 100nF
si_power save
C1103 22nF
AUDIO_RESET
HW RESET
R1072 100ohm
C1140 1nF 50V
R1073 100ohm 1/10W
MCLK
PMLL4148 D1001
RESET_DET
BD1000 MPZ2012S300A
BD1001 MPZ2012S300A
C1143 100nF
C1117 100nF
C1142 10uF
C1141 10uF
C1144 100nF
SEPERATE GND

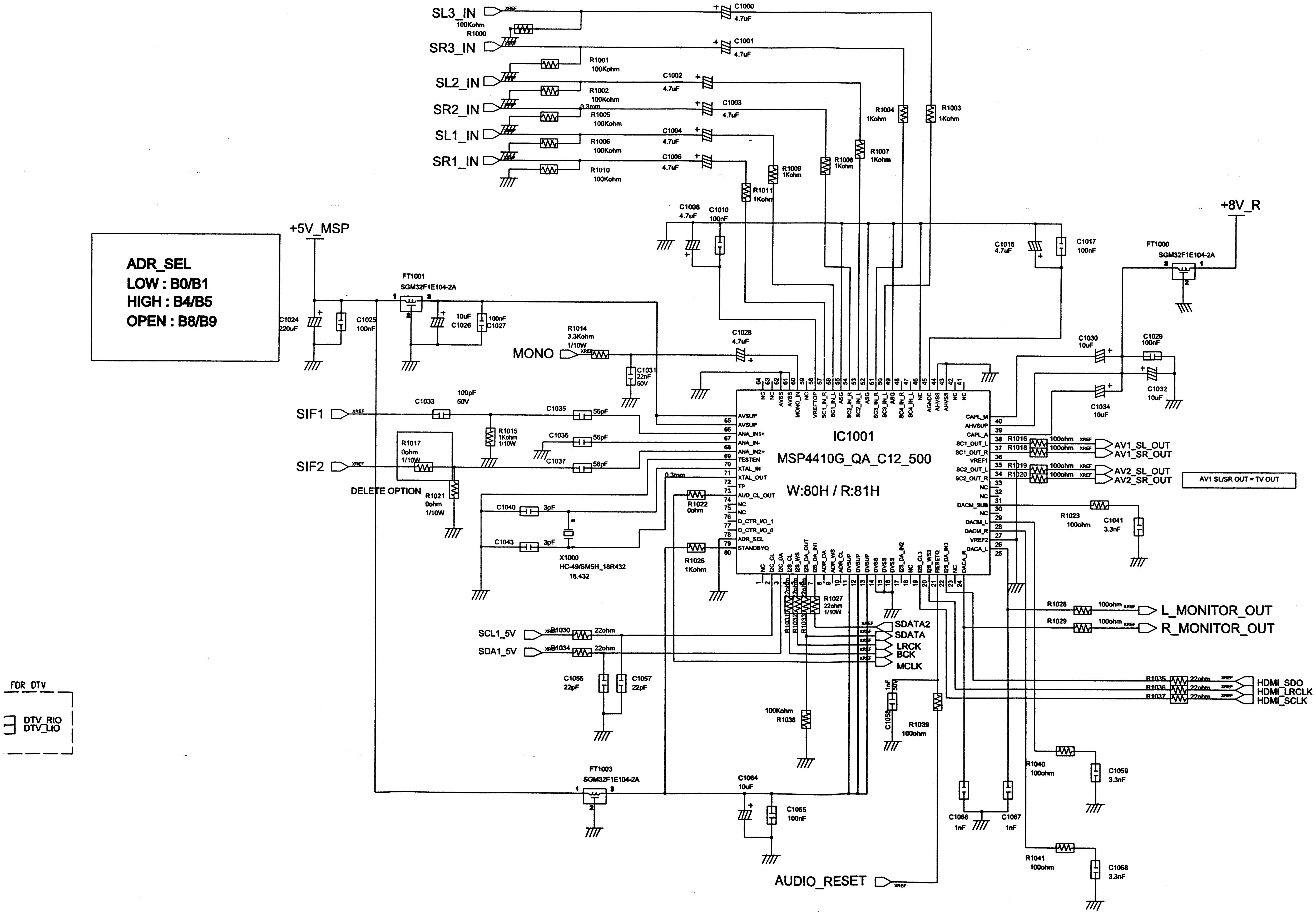
NTSC : 1204-002179
PAL : 1204-002180


SL3_IN
SR3_IN
SL2_IN
SR2_IN
SL1_IN
SR1_IN
+5V_MSP
+8V_R
FT1001
SGM32F1E104-2A
FT1000
MONO
SIF1
SIF2
DELETE OPTION
IC1001
MSP4410G_QA_C12_500
W:80H / R:81H
X1000
HC-49/SM5H_18R432
18.432
AV1_SL_OUT
AV1_SR_OUT
AV2_SL_OUT
AV2_SR_OUT
AV1 SL/SR OUT = TV OUT
L_MONITOR_OUT
R_MONITOR_OUT
SCL1_5V
SDA1_5V
SDATA2
SDATA
LRCK
BCK
MCLK
HDMI_SDO
HDMI_LRCLK
HDMI_SCLK
FT1003
SGM32F1E104-2A
AUDIO_RESET

IC1304
ADDING BOTTOM GND PAD SURFACE


+3.3VDD_IO
+18V
IC1003
SUPLECODE
TAS5112DCA
BOTTOM HEATSINK
L1000
L1001
L1002
L1003
L1004
L1005
ZD10_1
ZD10_2
ZD10_3
ZD10_4
RLZTE-1130B
C1097
470nF
MP
C1149
470nF
MP
CN1000
SUPLVAL U1306
SUPLVAL U1307
SUPLVAL U1308
SUPLVAL U1309


+3.3VDD_IO
395
IPLVAL
C1073
100nF
C1074
100uF
DELETE OPTION
R1042
3.3Kohm
R1044
220ohm
C1075
100nF
25V
+3.3VDD_IO
+3.3VDD_IO
R1045
10Kohm
R1043
10Kohm
+2.5VDD_C
R1050
100ohm
R1051
4.7Kohm
1/10W
NSP6241
IC1004
NSP6241
LRCK
BCK
SDATA2
R1054
R1055
47ohm
47ohm
R1057
100Kohm
SCL0
SDA0
R1061
R1062
10ohm
10ohm
C1095
22pF
C1096
22pF
C1086
10nF
50V
C1089
100nF
25V
DELETE OPTION
AUDIO_RESET
SDS7009
D1000
R1063
100ohm
1/10W
MUTE
R1065
4.7Kohm
1/10W
DELETE OPTION
C1103
22nF
AUDIO_RESET
HW RESET
R1072
100ohm
C1140
R1073
10ohm
1/10W
MCLK
PMLL4148
D1001
RESET_DET
BD1000
MPZ2012S300A
BD1001
MPZ2012S300A
C1143
100nF
C1117
100nF
C1142
10uF
C1141
10uF
C1144
100nF
SEPERATE GND
IC1304
ADDING BOTTOM GND PAD SURFACE
+3.3VDD_IO
R1049
10Kohm
C1078
1uF
IC1003
SUPLECODE
TAS5112DCA
C1076
100nF
R1046
1ohm
R1052
100ohm
R1058
100ohm
DELETE OPTION
C1091
100nF
C1084
33nF
C1087
33nF
C1093
33nF
C1098
33nF
+3.3V_ST
R1067
100ohm
+3.3VDD_IO
R1068
0ohm
R1071
0ohm
C1105
100nF
C1102
1uF
si_power save
BOTTOM HEATSINK
C1106
100nF
C1145
33uF
C1085
100nF
R1053
1ohm
C1088
100nF
R1056
1ohm
C1094
100nF
R1059
1ohm
C1101
100nF
R1070
1ohm
+18V
C1080
470uF
C1081
470uF
R1048
4.7ohm
C1083
10nF
C1079
100nF
R1047
4.7ohm
C1082
10nF
C1077
100nF
L1000
L1002
L1003
L1005
C1092
100nF
R1060
10Kohm
C1090
10nF
R1064
1ohm
ZD10_1
RLZTE-1130B
C1099
100nF
R1069
10Kohm
R1066
1ohm
C1100
10nF
ZD10_2
RLZTE-1130B
C1097
470nF
MP
C1110
100nF
R1074
10Kohm
C1109
10nF
R1075
1ohm
ZD10_3
RLZTE-1130B
C1112
100nF
R1077
10Kohm
R1076
1ohm
C1113
10nF
ZD10_4
RLZTE-1130B
C1148
470nF
MP
L1001
L1004
CN1000
SUPLVAL U1306
SUPLVAL U1307
SUPLVAL U1308
SUPLVAL U1309


SL3_IN
SR3_IN
SL2_IN
SR2_IN
SL1_IN
SR1_IN
R1000 100Kohm
R1001 100Kohm
R1002 100Kohm
R1005 100Kohm
R1006 100Kohm
R1010 100Kohm
C1000 4.7uF
C1001 4.7uF
C1002 4.7uF
C1003 4.7uF
C1004 4.7uF
C1006 4.7uF
R1003 1Kohm
R1004 1Kohm
R1007 1Kohm
R1008 1Kohm
R1009 1Kohm
R1011 1Kohm
C1008 4.7uF
C1010 100nF
C1016 4.7uF
C1017 100nF
+5V_MSP
+8V_R
FT1000 SGM32F1E104-2A
FT1001 SGM32F1E104-2A
FT1003 SGM32F1E104-2A
C1024 220uF
C1025 100nF
C1026 10uF
C1027 100nF
R1014 3.3Kohm 1/10W
MONO
C1028 4.7uF
C1031 22nF 50V
SIF1
SIF2
C1033 100pF 50V
C1035 56pF
C1036 56pF
C1037 56pF
R1015 1Kohm 1/10W
R1017 0ohm 1/10W
R1021 0ohm 1/10W
DELETE OPTION
C1040 3pF
C1043 3pF
X1000 HC-49/SM5H_18R432 18.432
R1022 0ohm
R1026 1Kohm
IC1001
MSP4410G_QA_C12_500
W:80H / R:81H
C1030 10uF
C1029 100nF
C1032 10uF
C1034 10uF
R1016 100ohm
R1018 100ohm
R1019 100ohm
R1020 100ohm
AV1_SL_OUT
AV1_SR_OUT
AV2_SL_OUT
AV2_SR_OUT
AV1 SL/SR OUT = TV OUT
R1023 100ohm
C1041 3.3nF
R1028 100ohm
R1029 100ohm
L_MONITOR_OUT
R_MONITOR_OUT
R1027 22ohm 1/10W
SDATA2
SDATA
LRCK
BCK
MCLK
SCL1_5V
SDA1_5V
R1030 22ohm
R1034 22ohm
C1056 22pF
C1057 22pF
R1038 100Kohm
C1058 1nF
R1039 100ohm
R1035 22ohm
R1036 22ohm
R1037 22ohm
HDMI_SDO
HDMI_LRCLK
HDMI_SCLK
R1040 100ohm
C1059 3.3nF
R1041 100ohm
C1068 3.3nF
C1066 1nF
C1067 1nF
C1064 10uF
C1065 100nF
AUDIO_RESET
FOR DTV
DTV_RtO
DTV_LtO

ADR_SEL
LOW : B0/B1
HIGH : B4/B5
OPEN : B8/B9

NTSC : 1204-002179
PAL : 1204-002180

10-1-10 AUDIO PART

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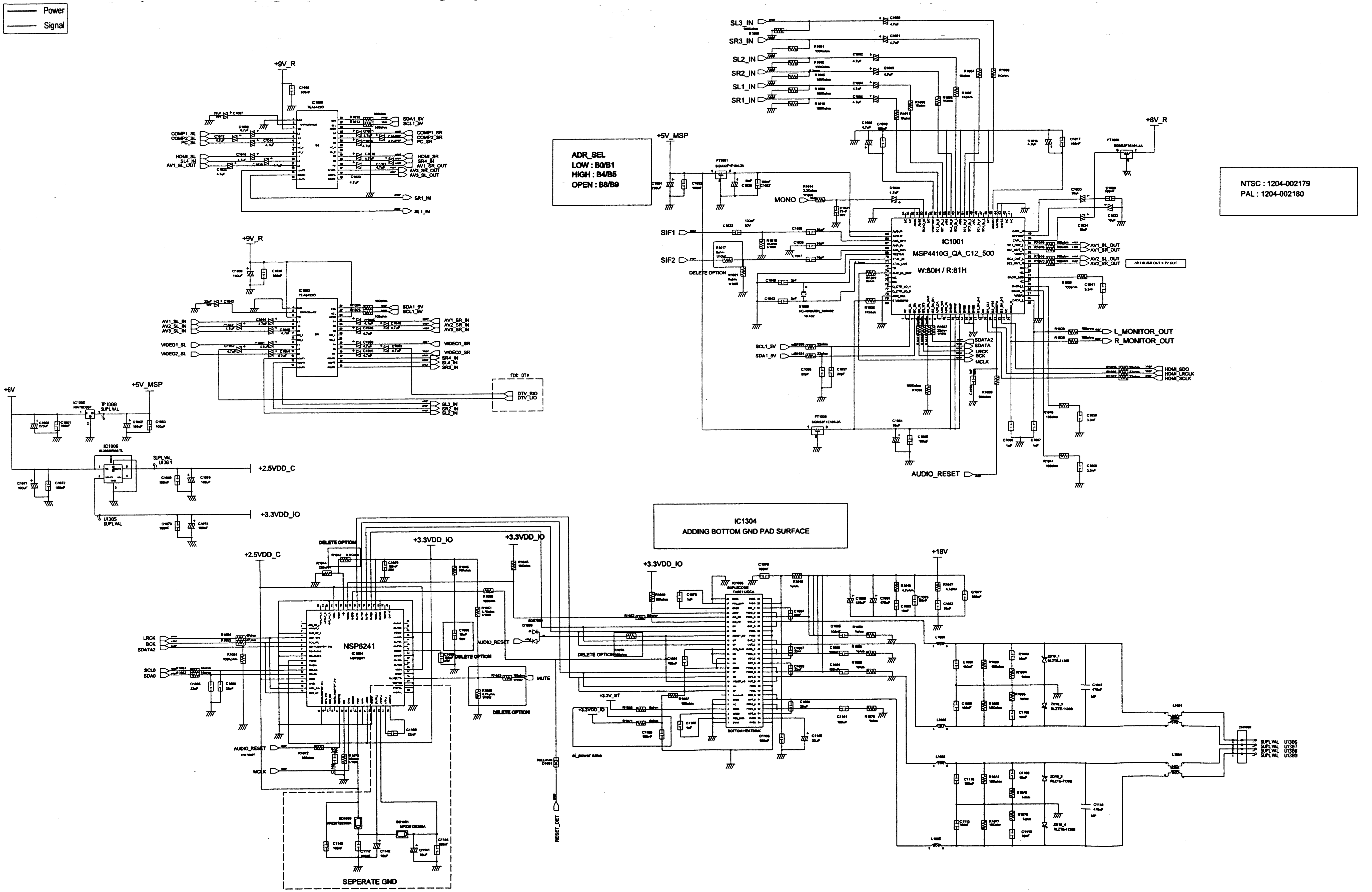
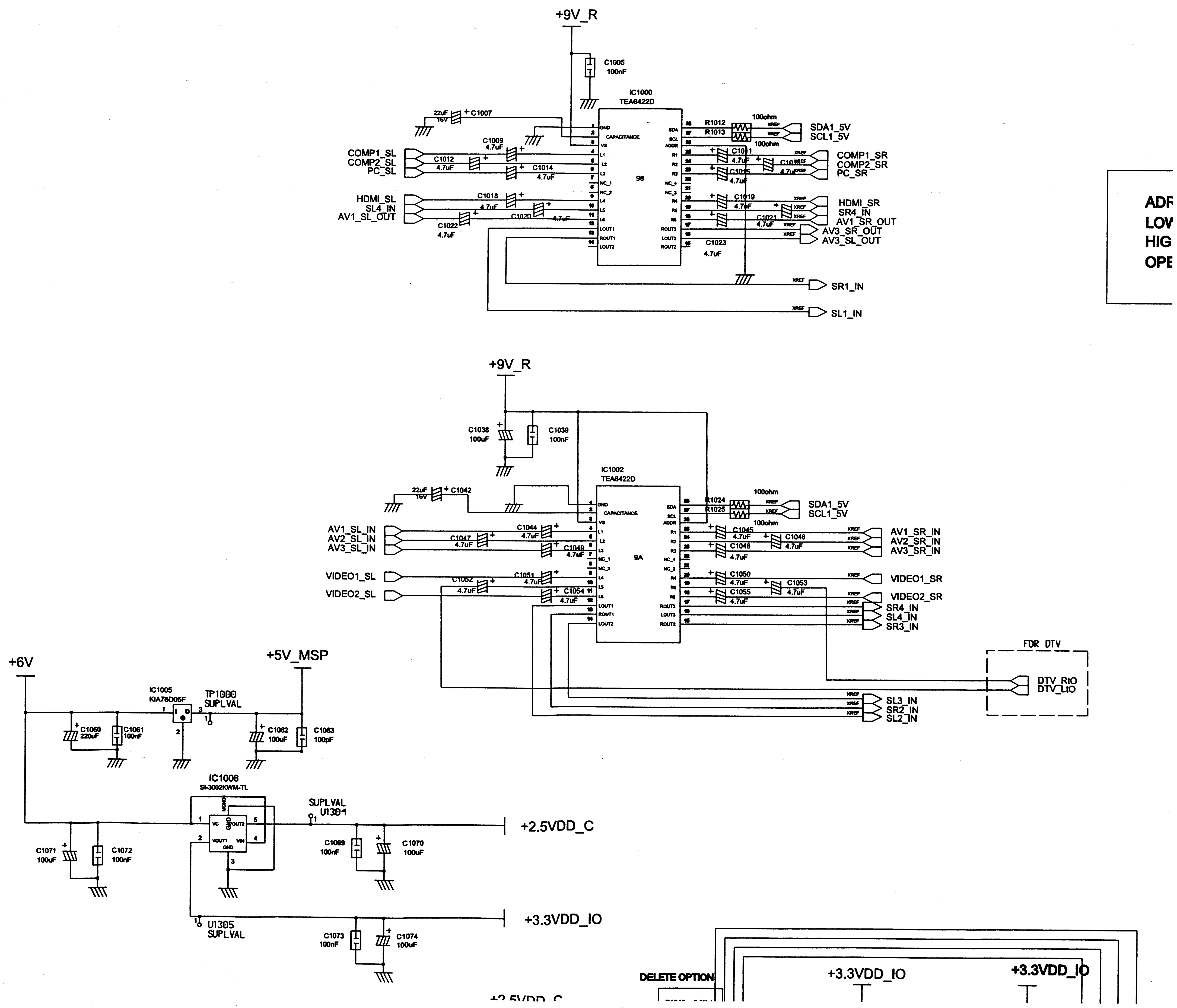

Power
Signal
+9V_R
IC1000
COMP1_SL
COMP2_SL
PC_SL
HDMI_SL
SL4_IN
AV1_SL_OUT
SDA1_5V
SCL1_5V
COMP1_SR
COMP2_SR
PC_SR
HDMI_SR
SR4_IN
AV1_SR_OUT
AV3_SR_OUT
AV3_SL_OUT
SR1_IN
SL1_IN
+9V_R
AV1_SL_IN
AV2_SL_IN
AV3_SL_IN
VIDEO1_SL
VIDEO2_SL
AV1_SR_IN
AV2_SR_IN
AV3_SR_IN
VIDEO1_SR
VIDEO2_SR
SR4_IN
SL4_IN
SR3_IN
SL3_IN
SR2_IN
SL2_IN
FOR DTV
DTV_RIO
DTV_LIO
+6V
+5V_MSP
IC1005
IC1006
+2.5VDD_C
+3.3VDD_IO
ADR_SEL
LOW : B0/B1
HIGH : B4/B5
OPEN : B8/B9
+5V_MSP
SL3_IN
SR3_IN
SL2_IN
SR2_IN
SL1_IN
SR1_IN
MONO
SIF1
SIF2
DELETE OPTION
IC1001
MSP4410G_QA_C12_500
W:80H / R:81H
+8V_R
AV1_SL_OUT
AV1_SR_OUT
AV2_SL_OUT
AV2_SR_OUT
AV1 SL/SR OUT = TV OUT
SCL1_5V
SDA1_5V
SDATA2
SDATA
LRCK
BCK
MCLK
L_MONITOR_OUT
R_MONITOR_OUT
HDMI_SDO
HDMI_LRCLK
HDMI_SCLK
AUDIO_RESET
NTSC : 1204-002179
PAL : 1204-002180
IC1304
ADDING BOTTOM GND PAD SURFACE
DELETE OPTION
+3.3VDD_IO
+3.3VDD_IO
+2.5VDD_C
LRCK
BCK
SDATA2
SCL0
SDA0
NSP6241
AUDIO_RESET
DELETE OPTION
MUTE
DELETE OPTION
AUDIO_RESET
MCLK
SEPERATE GND
+3.3VDD_IO
+18V
+3.3V_ST
+3.3VDD_IO
DELETE OPTION
BOTTOM HEATSINK
RESET_DET

10-1-10 AUDIO PART

This Document can not be used without Samsung's authorization.

Power

Signal


+9V_R
C1005
100nF
IC1000
TEA6422D
22uF
16V
C1007
GND
CAPACITANCE
VS
L1
L2
L3
NC_1
NC_2
L4
L5
L6
LOUT1
ROUT1
LOUT2
98
SDA
SCL
ADDR
R1
R2
R3
NC_4
NC_3
R4
R5
R6
ROUT3
LOUT3
ROUT2
C1009
4.7uF
COMP1_SL
COMP2_SL
PC_SL
C1012
4.7uF
C1014
4.7uF
HDMI_SL
SL4_IN
AV1_SL_OUT
C1018
4.7uF
C1020
4.7uF
C1022
4.7uF
R1012
R1013
100ohm
100ohm
XREF
SDA1_5V
SCL1_5V
C1011
4.7uF
C1013
4.7uF
C1015
4.7uF
COMP1_SR
COMP2_SR
PC_SR
C1019
4.7uF
C1021
4.7uF
HDMI_SR
SR4_IN
AV1_SR_OUT
AV3_SR_OUT
AV3_SL_OUT
C1023
4.7uF
SR1_IN
SL1_IN
ADF
LOW
HIG
OPE
+9V_R
C1038
100uF
C1039
100nF
IC1002
TEA6422D
22uF
16V
C1042
9A
AV1_SL_IN
AV2_SL_IN
AV3_SL_IN
C1044
4.7uF
C1047
4.7uF
C1049
4.7uF
VIDEO1_SL
VIDEO2_SL
C1051
4.7uF
C1052
4.7uF
C1054
4.7uF
R1024
R1025
100ohm
100ohm
SDA1_5V
SCL1_5V
C1045
4.7uF
C1046
4.7uF
C1048
4.7uF
AV1_SR_IN
AV2_SR_IN
AV3_SR_IN
C1050
4.7uF
C1053
4.7uF
C1055
4.7uF
VIDEO1_SR
VIDEO2_SR
SR4_IN
SL4_IN
SR3_IN
FOR DTV
DTV_RtO
DTV_LtO
SL3_IN
SR2_IN
SL2_IN
+6V
+5V_MSP
IC1005
KIA78D05F
TP1000
SUPLVAL
C1060
220uF
C1061
100nF
C1062
100uF
C1063
100pF
IC1006
SI-3002KWM-TL
VC
VOUT1
GND
VOUT2
VIN
MGND
SUPLVAL
U1304
+2.5VDD_C
C1069
100nF
C1070
100uF
C1071
100uF
C1072
100nF
U1305
SUPLVAL
+3.3VDD_IO
C1073
100nF
C1074
100uF
DELETE OPTION
+3.3VDD_IO
+3.3VDD_IO
+2.5VDD_C

10-1-12 SOUND DELAY

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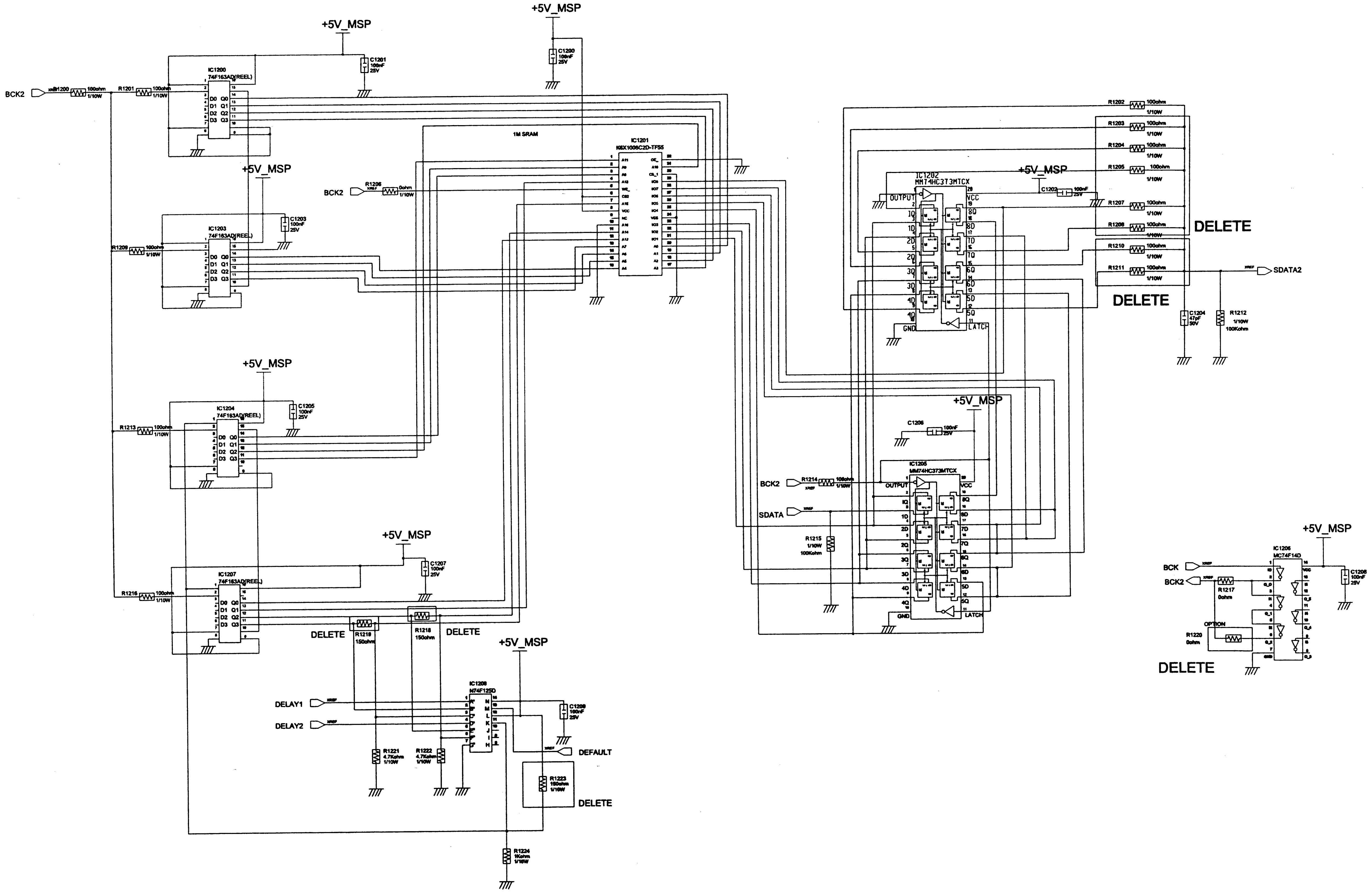
——— Power
——— Signal


+5V_MSP
C1201
100nF
25V
+5V_MSP
C1200
100nF
25V
BCK2
R1200
100ohm
1/10W
R1201
100ohm
1/10W
IC1200
74F163AD(REEL)
D0 Q0
D1 Q1
D2 Q2
D3 Q3
1M SRAM
IC1201
K6X1008C2D-TF55
A11
A9
A8
A13
WE_
CS2
A15
VCC
NC
A16
A14
A12
A7
A6
A5
A4
OE_
A10
CS_1
IO8
IO7
IO6
IO5
IO4
VSS
IO3
IO2
IO1
A0
A1
A2
A3
BCK2
R1206
XREF
0ohm
1/10W
+5V_MSP
C1203
100nF
25V
IC1203
74F163AD(REEL)
R1209
100ohm
1/10W
D0 Q0
D1 Q1
D2 Q2
D3 Q3
R1202
100ohm
1/10W
R1203
100ohm
1/10W
R1204
100ohm
1/10W
R1205
100ohm
1/10W
IC1202
MM74HC373MTCX
+5V_MSP
C1202
100nF
25V
OUTPUT
VCC
1Q
1D
2D
2Q
3Q
3D
4D
4Q
GND
8Q
8D
7D
7Q
6Q
6D
5D
5Q
LATCH
R1207
100ohm
1/10W
R1208
100ohm
1/10W
DELETE
R1210
100ohm
1/10W
R1211
100ohm
1/10W
XREF
SDATA2
DELETE
C1204
47pF
50V
R1212
1/10W
100Kohm
+5V_MSP
IC1204
74F163AD(REEL)
C1205
100nF
25V
R1213
100ohm
1/10W
D0 Q0
D1 Q1
D2 Q2
D3 Q3
+5V_MSP
C1206
100nF
25V
IC1205
MM74HC373MTCX
BCK2
R1214
XREF
100ohm
1/10W
OUTPUT
VCC
SDATA
XREF
R1215
1/10W
100Kohm
1Q
1D
2D
2Q
3Q
3D
4D
4Q
GND
8Q
8D
7D
7Q
6Q
6D
5D
5Q
LATCH
+5V_MSP
C1207
100nF
25V
IC1207
74F163AD(REEL)
R1216
100ohm
1/10W
D0 Q0
D1 Q1
D2 Q2
D3 Q3
DELETE
R1219
150ohm
R1218
150ohm
DELETE
+5V_MSP
IC1208
N74F125D
DELAY1
XREF
DELAY2
XREF
N
M
L
K
J
I
H
C1209
100nF
25V
R1221
4.7Kohm
1/10W
R1222
4.7Kohm
1/10W
XREF
DEFAULT
R1223
100ohm
1/10W
DELETE
R1224
1Kohm
1/10W
+5V_MSP
IC1206
MC74F14D
BCK
XREF
BCK2
XREF
R1217
0ohm
VCC
C1208
100nF
25V
OPTION
R1220
0ohm
GND
DELETE

10-1-11 LVDS

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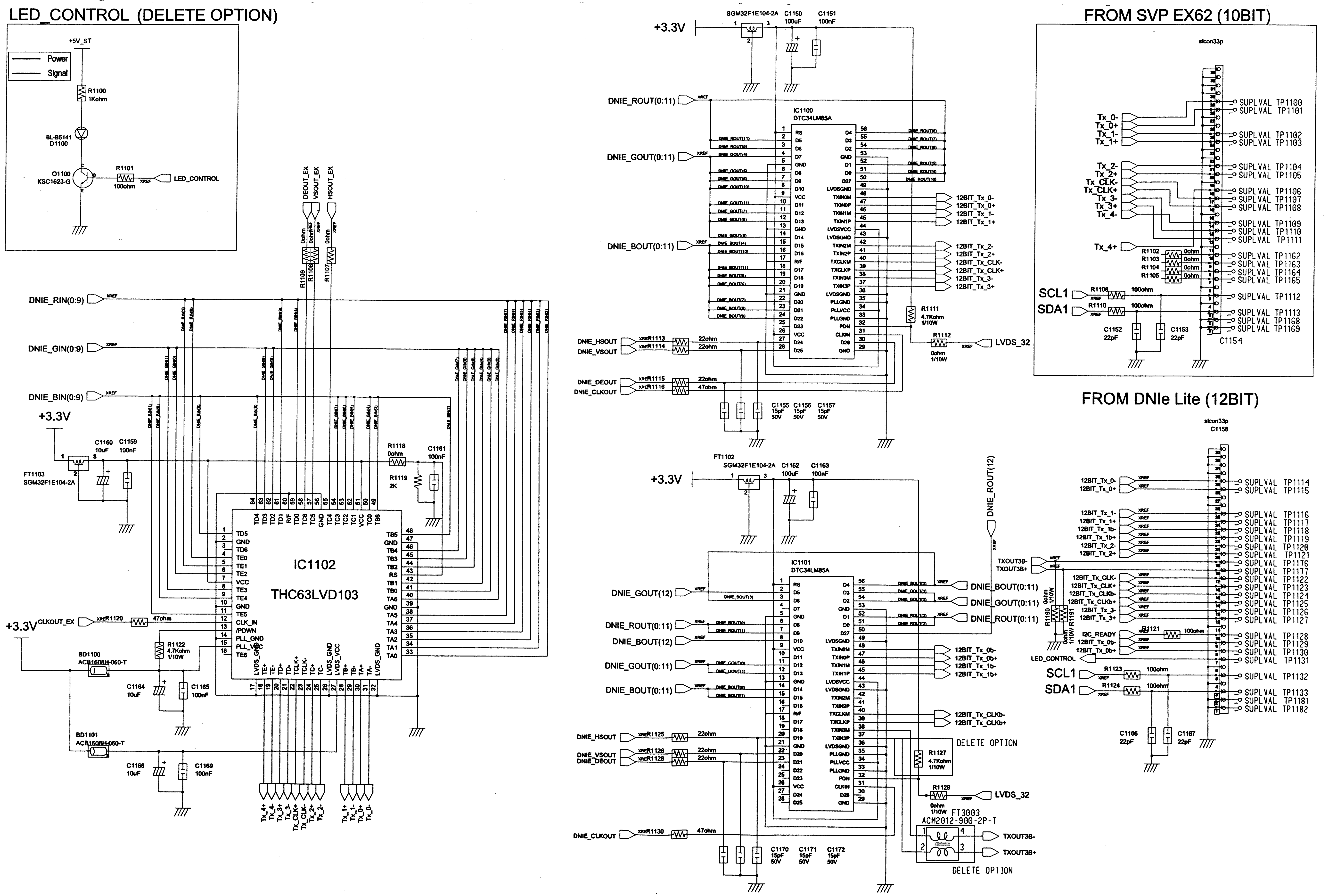
LED_CONTROL (DELETE OPTION)
+5V_ST
Power
Signal
R1100 1Kohm
BL-B5141 D1100
Q1100 KSC1623-G
R1101 100ohm
LED_CONTROL
DEOUT_EX
VSOUT_EX
HSOUT_EX
R1109 R1106 R1107 0ohm
DNIE_RIN(0:9)
DNIE_GIN(0:9)
DNIE_BIN(0:9)
+3.3V
C1160 10uF
C1159 100nF
FT1103 SGM32F1E104-2A
R1118 0ohm
C1161 100nF
R1119 2K
IC1102
THC63LVD103
CLKOUT_EX
R1120 47ohm
R1122 4.7Kohm 1/10W
BD1100 ACB1608H-060-T
BD1101 ACB1608H-060-T
C1164 10uF
C1165 100nF
C1168 10uF
C1169 100nF
Tx_4+ Tx_4- Tx_3+ Tx_3- Tx_CLK+ Tx_CLK- Tx_2+ Tx_2- Tx_1+ Tx_1- Tx_0+ Tx_0-
SGM32F1E104-2A C1150 100uF C1151 100nF
DNIE_ROUT(0:11)
DNIE_GOUT(0:11)
DNIE_BOUT(0:11)
IC1100 DTC34LM85A
12BIT_Tx_0- 12BIT_Tx_0+ 12BIT_Tx_1- 12BIT_Tx_1+
12BIT_Tx_2- 12BIT_Tx_2+ 12BIT_Tx_CLK- 12BIT_Tx_CLK+ 12BIT_Tx_3- 12BIT_Tx_3+
R1111 4.7Kohm 1/10W
R1112 0ohm 1/10W
LVDS_32
DNIE_HSOUT DNIE_VSOUT R1113 R1114 22ohm
DNIE_DEOUT DNIE_CLKOUT R1115 22ohm R1116 47ohm
C1155 C1156 C1157 15pF 50V
FROM SVP EX62 (10BIT)
slcon33p
SUPLVAL TP1100 … TP1169
R1102 R1103 R1104 R1105 0ohm
SCL1 SDA1 R1108 R1110 100ohm
C1152 22pF C1153 22pF C1154
FROM DNIe Lite (12BIT)
slcon33p C1158
FT1102 SGM32F1E104-2A C1162 100uF C1163 100nF
DNIE_ROUT(12)
DNIE_GOUT(12)
DNIE_BOUT(12)
IC1101 DTC34LM85A
TXOUT3B- TXOUT3B+
12BIT_Tx_0b- 12BIT_Tx_0b+ 12BIT_Tx_1b- 12BIT_Tx_1b+
12BIT_Tx_CLKb- 12BIT_Tx_CLKb+
R1125 22ohm R1126 22ohm R1128 22ohm
DELETE OPTION
R1127 4.7Kohm 1/10W
R1129 0ohm 1/10W
FT3003 ACM2012-900-2P-T
R1130 47ohm
C1170 C1171 C1172 15pF 50V
R1190 R1191 0ohm 1/10W
I2C_READY R1121 100ohm
R1123 100ohm R1124 100ohm
C1166 22pF C1167 22pF
SUPLVAL TP1114 … TP1182

10-2 Function

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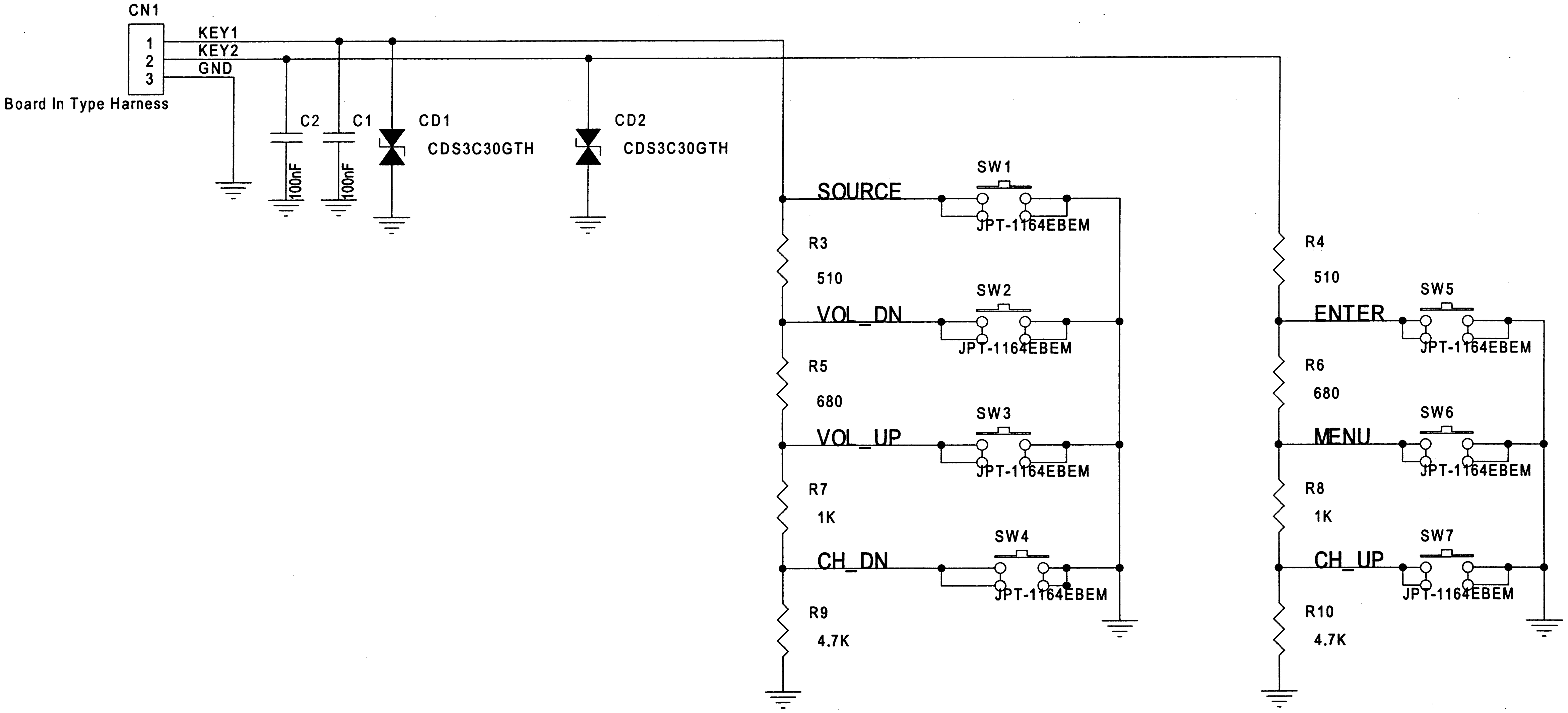
CN1
1
2
3
KEY1
KEY2
GND
Board In Type Harness
C2
C1
100nF
100nF
CD1
CDS3C30GTH
CD2
CDS3C30GTH
SOURCE
SW1
JPT-1164EBEM
R3
510
VOL_DN
SW2
JPT-1164EBEM
R5
680
VOL_UP
SW3
JPT-1164EBEM
R7
1K
CH_DN
SW4
JPT-1164EBEM
R9
4.7K
R4
510
ENTER
SW5
JPT-1164EBEM
R6
680
MENU
SW6
JPT-1164EBEM
R8
1K
CH_UP
SW7
JPT-1164EBEM
R10
4.7K

10-1-13 TUNER_DTV_POWER

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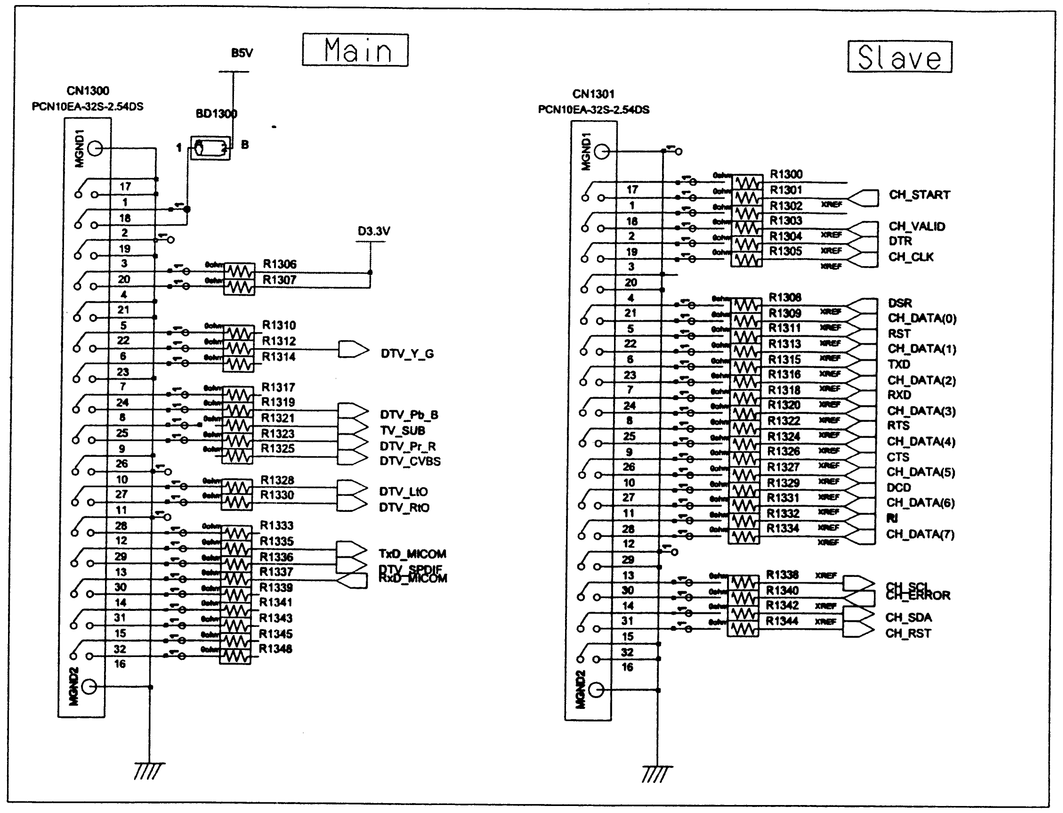
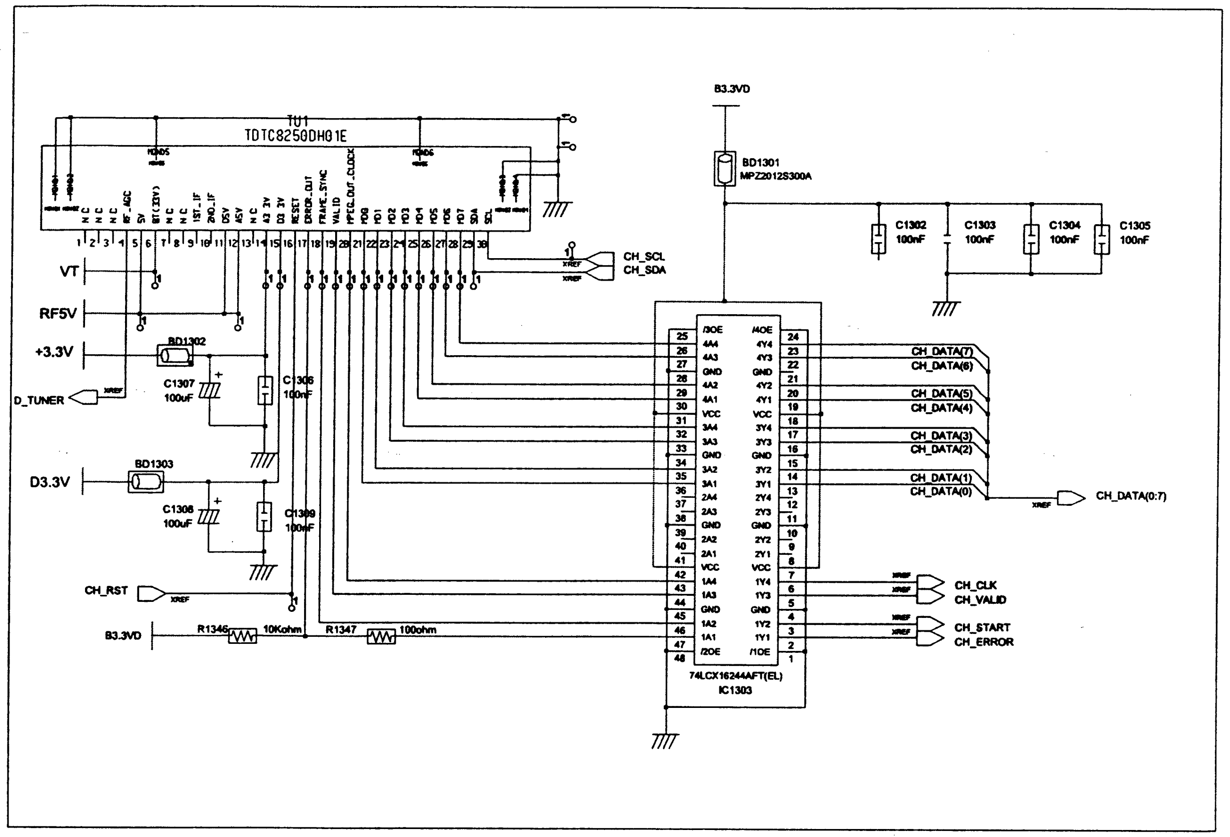
Power
Signal

DTV MODULE CONNECTION

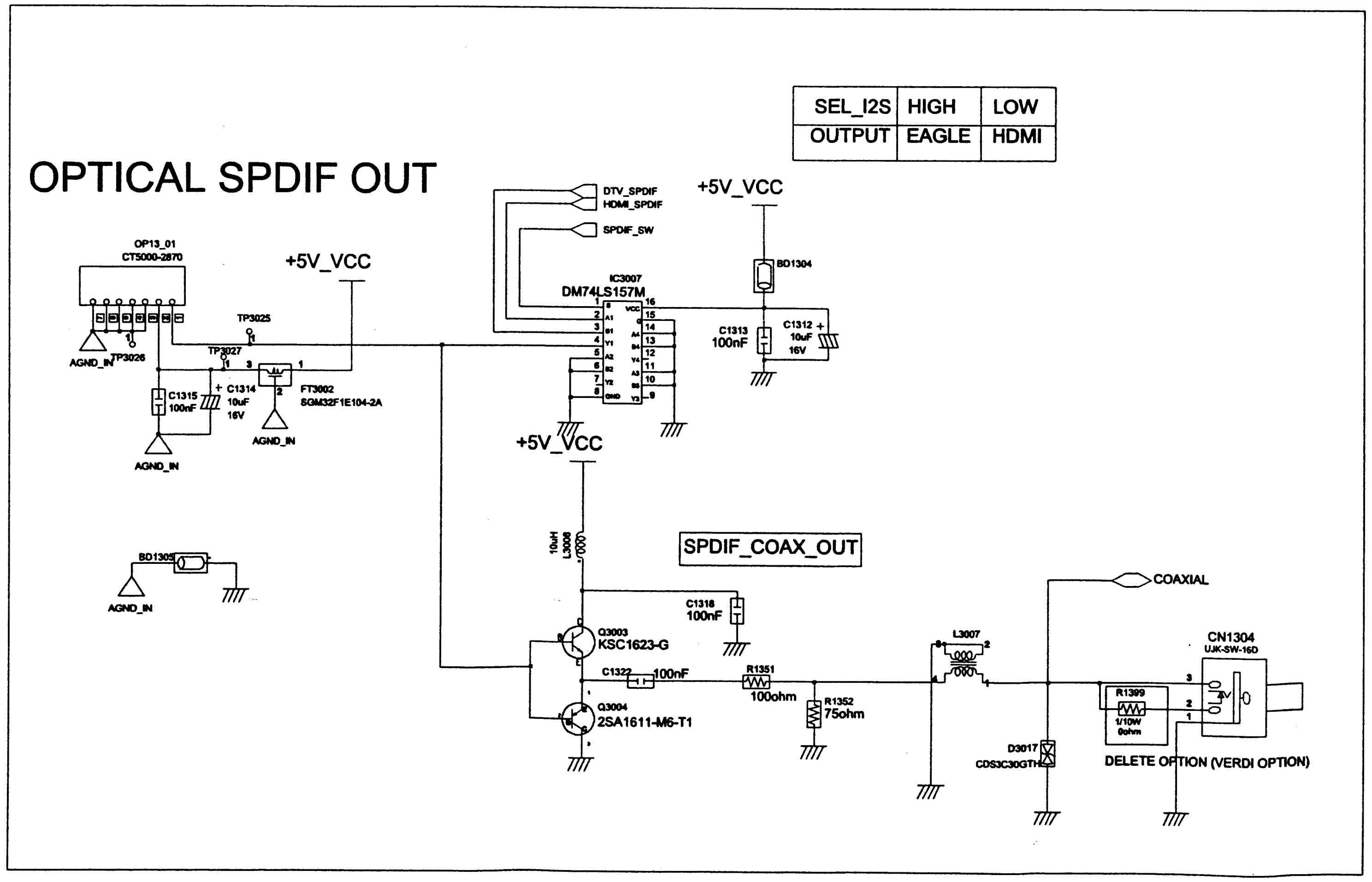

Main
Slave
B5V
CN1300
PCN10EA-32S-2.54DS
BD1300
MGND1
MGND2
D3.3V
R1306
R1307
R1310
R1312
R1314
DTV_Y_G
R1317
R1319
R1321
R1323
R1325
DTV_Pb_B
TV_SUB
DTV_Pr_R
DTV_CVBS
R1328
R1330
DTV_LtO
DTV_RtO
R1333
R1335
R1336
R1337
R1339
R1341
R1343
R1345
R1348
TxD_MICOM
DTV_SPDIF
RxD_MICOM
CN1301
PCN10EA-32S-2.54DS
R1300
R1301
R1302
R1303
R1304
R1305
CH_START
CH_VALID
DTR
CH_CLK
R1308
R1309
R1311
R1313
R1315
R1316
R1318
R1320
R1322
R1324
R1326
R1327
R1329
R1331
R1332
R1334
DSR
CH_DATA(0)
RST
CH_DATA(1)
TXD
CH_DATA(2)
RXD
CH_DATA(3)
RTS
CH_DATA(4)
CTS
CH_DATA(5)
DCD
CH_DATA(6)
RI
CH_DATA(7)
R1338
R1340
R1342
R1344
CH_SCL
CH_ERROR
CH_SDA
CH_RST

DIGITAL TUNER

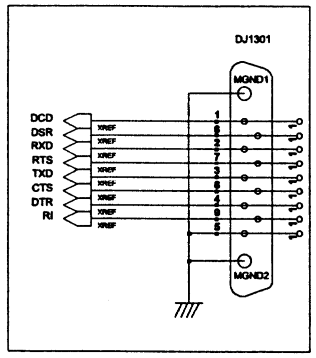

TU1
TDTC8250DH01E
B3.3VD
BD1301
MPZ2012S300A
C1302 100nF
C1303 100nF
C1304 100nF
C1305 100nF
VT
RF5V
+3.3V
BD1302
C1307 100uF
C1306 100nF
D_TUNER
D3.3V
BD1303
C1308 100uF
C1309 100nF
CH_SCL
CH_SDA
CH_RST
B3.3VD
R1346 10Kohm
R1347 100ohm
CH_DATA(7)
CH_DATA(6)
CH_DATA(5)
CH_DATA(4)
CH_DATA(3)
CH_DATA(2)
CH_DATA(1)
CH_DATA(0)
CH_DATA(0:7)
CH_CLK
CH_VALID
CH_START
CH_ERROR
74LCX16244AFT(EL)
IC1303

OPTICAL SPDIF OUT

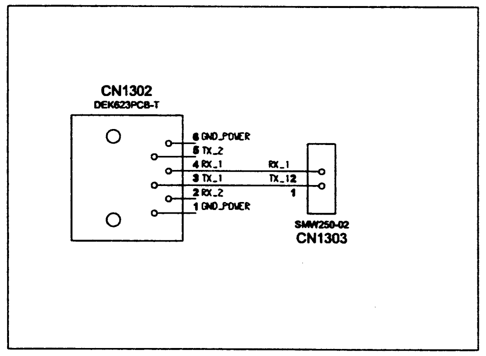
SEL_I2S	HIGH	LOW
OUTPUT	EAGLE	HDMI

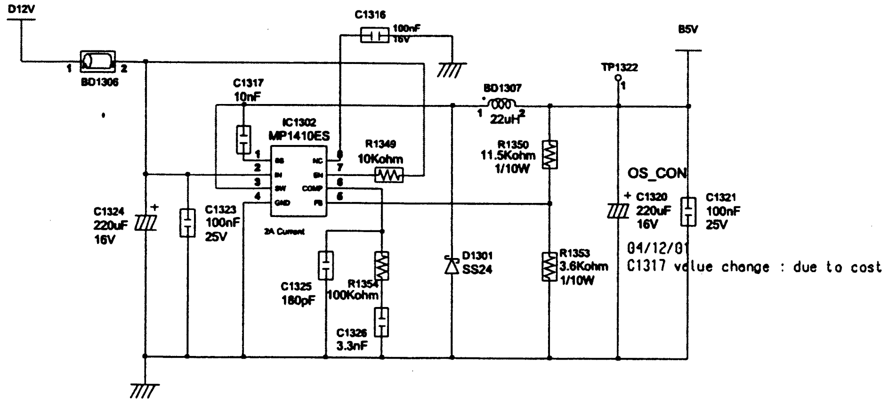

OP13_01
CT5000-2870
+5V_VCC
TP3025
TP3026
TP3027
AGND_IN
C1315 100nF
C1314 10uF 16V
FT3002
SGM32F1E104-2A
DTV_SPDIF
HDMI_SPDIF
SPDIF_SW
IC3007
DM74LS157M
BD1304
C1313 100nF
C1312 10uF 16V
BD1305
SPDIF_COAX_OUT
L3008 10uH
C1318 100nF
Q3003 KSC1623-G
Q3004 2SA1611-M6-T1
C1322 100nF
R1351 100ohm
R1352 75ohm
L3007
COAXIAL
CN1304
UJK-SW-16D
R1399 1/10W 0ohm
D3017
CDS3C30GTH
DELETE OPTION (VERDI OPTION)

RS_232 JACK


DJ1301
MGND1
MGND2
DCD
DSR
RXD
RTS
TXD
CTS
DTR
RI
TP3000
TP3001
TP3002
TP3003
TP3004
TP3005
TP3006
TP3007
TP3008

LAN JACK


CN1302
DEK623PCB-T
6 GND_POWER
5 TX_2
4 RX_1
3 TX_1
2 RX_2
1 GND_POWER
RX_1
TX_12
SMW250-02
CN1303


D12V
BD1306
C1316 100nF 16V
B5V
C1317 10nF
IC1302
MP1410ES
R1349 10Kohm
BD1307 22uH
TP1322
R1350 11.5Kohm 1/10W
OS_CON
C1320 220uF 16V
C1321 100nF 25V
C1324 220uF 16V
C1323 100nF 25V
3A Current
C1325 180pF
R1354 100Kohm
C1326 3.3nF
D1301 SS24
R1353 3.6Kohm 1/10W
04/12/01
C1317 value change : due to cost

10-3 Power / IR

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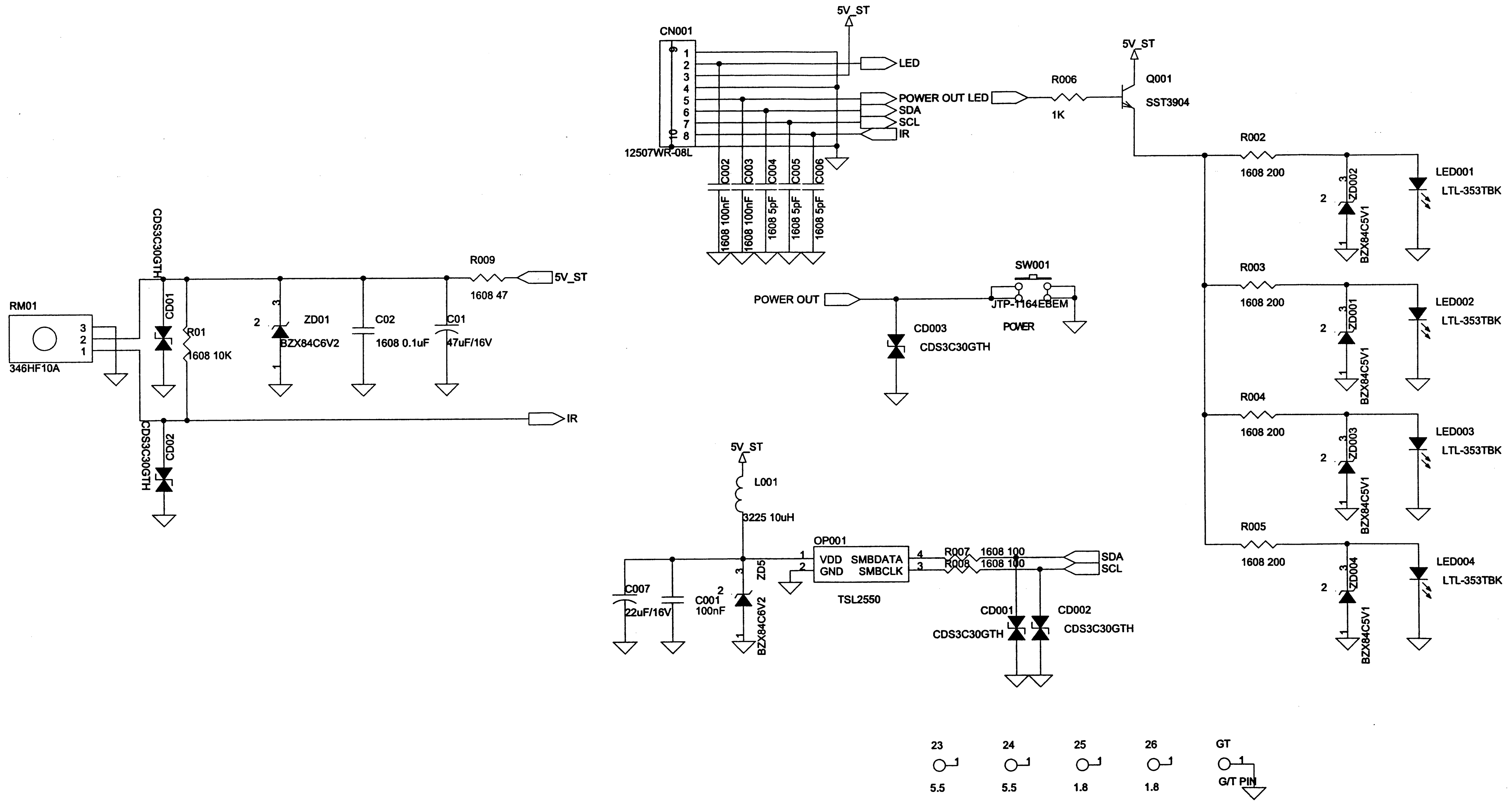
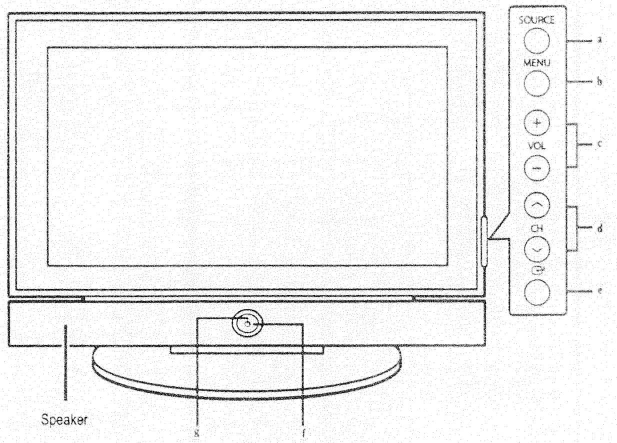

5V_ST
CN001
12507WR-08L
LED
POWER OUT LED
SDA
SCL
IR
R006
1K
Q001
SST3904
C002
C003
C004
C005
C006
1608 100nF
1608 100nF
1608 5pF
1608 5pF
1608 5pF
R002
1608 200
ZD002
BZX84C5V1
LED001
LTL-353TBK
R003
1608 200
ZD001
LED002
LTL-353TBK
R004
1608 200
ZD003
LED003
LTL-353TBK
R005
1608 200
ZD004
LED004
LTL-353TBK
RM01
346HF10A
CD01
CDS3C30GTH
R01
1608 10K
ZD01
BZX84C6V2
C02
1608 0.1uF
C01
47uF/16V
R009
1608 47
CD02
CDS3C30GTH
SW001
JTP-1164EBEM
POWER
POWER OUT
CD003
CDS3C30GTH
L001
3225 10uH
OP001
VDD
GND
SMBDATA
SMBCLK
TSL2550
R007
R008
1608 100
1608 100
C007
22uF/16V
C001
100nF
ZD5
BZX84C6V2
CD001
CDS3C30GTH
CD002
CDS3C30GTH
23
24
25
26
GT
5.5
5.5
1.8
1.8
G/T PIN

11. Operation Instruction & Installation

11-1 Product Features and Functions

11-1-1 Front Panel



a) SOURCE button
Select the external input source.

b) MENU button
Display the on-screen menu.

c) VOL + , − buttons
Adjust the volume.

d) CH ∧, ∨ buttons
Select channels.

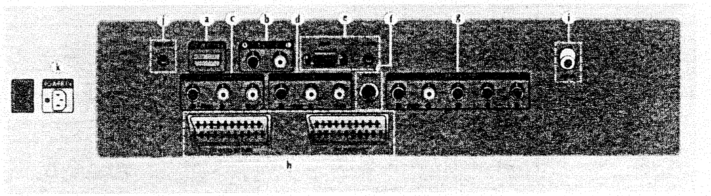
e) ⏎(ENTER) button
Confirm your choice (Store or Enter).

f) ⏻ (POWER) button
Press to turn the TV on and off.

Power Indicator
- Power Off: Blue
- Power On: Off

g) Remote Control Sensor
Aim the remote control towards this spot on the TV.

11-1-2 Rear Panel



a) HDMI/DVI IN
Connect to the HDMI jack of a device with HDMI output. These inputs can also be used as a DVI connection with separate analog audio inputs. An optional HDMI/DVI cable will be necessary to make this connection. When using the optional HDMI/DVI adapter, the DVI analog audio inputs on your TV allow you to receive left and right audio from your DVI device. (Not compatible with PC)

b) DVI AUDIO IN L/R
DVI audio outputs for external devices.

c) AV OUT (VIDEO / AUDIO L/R)
Outputs for external devices.

d) AV IN (VIDEO / AUDIO L/R)
Video and audio inputs for external devices, such as a camcorder or VCR.

e) PC IN / AUDIO
Connect to the video and audio output jack on your PC.

f) S-VIDEO
Video input for external devices with an S-Video output, such as a camcorder or VCR.

g) COMPONENT IN
Video (Y/P $_B$/P $_R$) and audio (AUDIO L/R) inputs for Component.

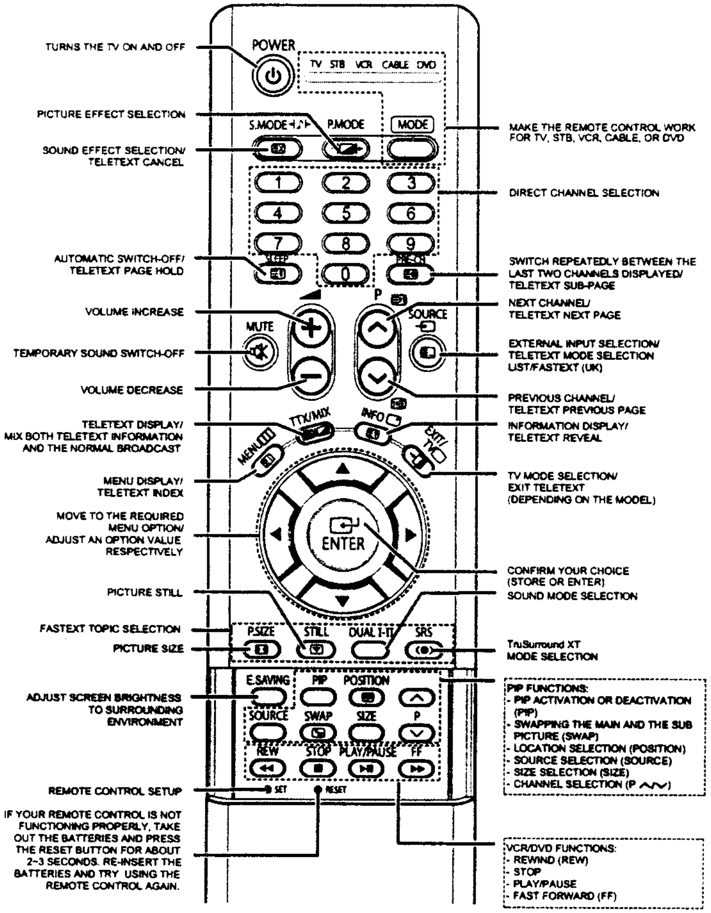
h) EXT 1, EXT 2
Inputs or outputs for external devices, such as VCR, DVD, video game device or video disc players.

i) ANT IN (75 Ω)
75 Ω Coaxial connector for Aerial/Cable Network.

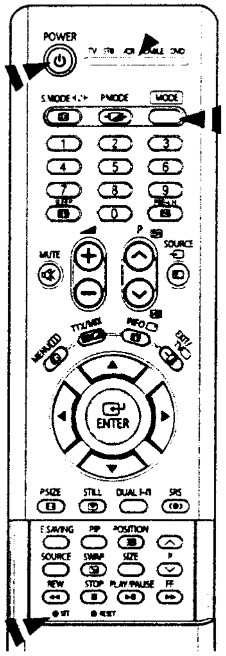
j) SERVICE
Connector for service only.

k) POWER IN
Connect the supplied power cord.

11-1-3 Remote Control


TURNS THE TV ON AND OFF
PICTURE EFFECT SELECTION
SOUND EFFECT SELECTION/ TELETEXT CANCEL
AUTOMATIC SWITCH-OFF/ TELETEXT PAGE HOLD
VOLUME INCREASE
TEMPORARY SOUND SWITCH-OFF
VOLUME DECREASE
TELETEXT DISPLAY/ MIX BOTH TELETEXT INFORMATION AND THE NORMAL BROADCAST
MENU DISPLAY/ TELETEXT INDEX
MOVE TO THE REQUIRED MENU OPTION/ ADJUST AN OPTION VALUE RESPECTIVELY
PICTURE STILL
FASTEXT TOPIC SELECTION
PICTURE SIZE
ADJUST SCREEN BRIGHTNESS TO SURROUNDING ENVIRONMENT
REMOTE CONTROL SETUP
IF YOUR REMOTE CONTROL IS NOT FUNCTIONING PROPERLY, TAKE OUT THE BATTERIES AND PRESS THE RESET BUTTON FOR ABOUT 2~3 SECONDS. RE-INSERT THE BATTERIES AND TRY USING THE REMOTE CONTROL AGAIN.
MAKE THE REMOTE CONTROL WORK FOR TV, STB, VCR, CABLE, OR DVD
DIRECT CHANNEL SELECTION
SWITCH REPEATEDLY BETWEEN THE LAST TWO CHANNELS DISPLAYED/ TELETEXT SUB-PAGE
NEXT CHANNEL/ TELETEXT NEXT PAGE
EXTERNAL INPUT SELECTION/ TELETEXT MODE SELECTION LIST/FASTEXT (UK)
PREVIOUS CHANNEL/ TELETEXT PREVIOUS PAGE
INFORMATION DISPLAY/ TELETEXT REVEAL
TV MODE SELECTION/ EXIT TELETEXT (DEPENDING ON THE MODEL)
CONFIRM YOUR CHOICE (STORE OR ENTER)
SOUND MODE SELECTION
TruSurround XT MODE SELECTION
PIP FUNCTIONS:
- PIP ACTIVATION OR DEACTIVATION (PIP)
- SWAPPING THE MAIN AND THE SUB PICTURE (SWAP)
- LOCATION SELECTION (POSITION)
- SOURCE SELECTION (SOURCE)
- SIZE SELECTION (SIZE)
- CHANNEL SELECTION (P ∧/∨)
VCR/DVD FUNCTIONS:
- REWIND (REW)
- STOP
- PLAY/PAUSE
- FAST FORWARD (FF)
POWER
TV STB VCR CABLE DVD
S.MODE P.MODE MODE
SLEEP PRE-CH
MUTE SOURCE P
TTX/MIX INFO MENU EXIT TV
ENTER
P.SIZE STILL DUAL I-II SRS
E.SAVING PIP POSITION
SOURCE SWAP SIZE P
REW STOP PLAY/PAUSE FF
SET RESET

■ Programming the Remote Control for Other Component



Your TV comes equipped with a universal remote control. In addition to controlling the TV, the universal remote control can also operate a VCR, Cable box, DVD, and Set-Top Box (even if your VCR, Cable box and DVD are made by manufacturers other than Samsung).

➢ The remote control might not be compatible with all VCRs, DVD players, Cable boxes, and Set-Top Boxs.

1 Turn off your VCR (Cable box or DVD).

2 Press the MODE button to switch the remote control to the VCR (CATV or DVD) mode.

➢ The remote control has five modes : TV, STB, VCR, CABLE and DVD.

3 Press the SET button.

4 Enter 3 digits of the VCR (Cable box or DVD) code listed on the next page for your VCR (Cable box or DVD).

Example: To enter code "6", press 0, 0, and 6.
To enter code "76", press 0, 7, and 6.

5 Press the POWER (◎) button. Your VCR (Cable box or DVD) should turn on. If it turns on, your remote control is now set correctly.

➢ If it does not turn on, repeat the steps above, but try one of the other codes listed for your particular brand.

6 Once your remote control is set up, press the MODE button any time you want to use the remote control to operate the VCR (Cable box or DVD).

➢ ◆ When your remote control is in STB, VCR, CABLE or DVD mode, the volume buttons still control your television's volume.

◆ When your remote control is in TV mode, the VCR or DVD control buttons (rewind, stop, play/pause, and fast forword) still operate your VCR or DVD.

VCR Remote Control Codes

Admiral	015,088	Hitachi	014,024,044,045	Quasar	017,053
Aiwa	024	Instant Replay	017	Radio Shack	011,015,017,018,021,024,
Akai	026,031,032	JC Penny	011,014,016,017,023,025,		028,036,052,062
Audio Dynamics	022,025		039,044,060,062	RCA	009,014,016,017,037,044,
Bell & Howell	011	JCL	011,017,023,025,039,055		046,063,078
Broksonic	019	Kenwood	011,023,025,039,055	Realistic	011,015,017,018,021,024,
Candle	016,018,022,054,055,061	KLH	082		028,036,052,062
Canon	017,062	LG(Goldstar)	001,002,007,018,023,055,	Samsung	000,016,022, 031,041,051
Citizen	016,018,022,054,055,061		069	Sansui	025
Colortyme	023	Lloyd	024	Sanyo	011,021
Craig	016,021	Logik	040	Scott	022,050,058,077
Curtis Mathes	009,016,017,023,024,055,	LXI	024	Sears	011,014,018,021,027,028,
	062,073,076	Magnavox	017,038,062,065		044,052,057
Daewoo	003,004,005,006,007,008,	Marantz	011,017,023,025,038,039,	Sharp	015,036,048,054
	022,054,085		055,070	Shintom	026,035,040,064
DB	023,025	MTC	016,024	Signature	024
Dimensia	009	Multitech	016,024,040,041	Sony	026,035,047
Dynatech	024	NEC	011,023,025,039,055,070,	Sylvania	017,024,038,062,065
Electrohome	036		073	Symphonic	024
Emerson	017,018,019,022,024,029,	Optimus	015	Tandy	011,024
	032,036,043,050,051,056,	Panasonic	017,062,084,086	Tatung	039
	058,066,071,074,076,077,	Pentax	014,044	Teac	024,039,078
	079	Pentax Research+	055	Technics	017
Fisher	011,021,027,028,052,057,	Philco	017,038,062,065	Teknika	017,018,024,030
	067	Philips	017,038	TMK	076
Funai	024	Pioneer	014,025,042,059	Toshiba	014,022,028,057,058
General Electric	009,016,017,041,062	Portland	053,054,061	Toshiko	018
Go Video	016	PROSCAN	009	Totevision	016,018
Harman Kardon	023	Quartz	011		

Cable Box (CATV) Remote Control Codes

Anvision	015,016	Magnavox	015,016,027,029,034,036,	Signature	054
Cable Star	015,016		037,040,041,048,049	Sprucer	035
DaeHan	005	Nawoo	001	Starcom	054
DaeRyung	003	NSC	017	Stargate2000	066
DongKuk	004	Oak	024,046	Sylvania	019,067
Eagle	015,016	Osk Sigma	024	TaePyungYang	002
Eastern International	020	Panasonic	011,035,047,069	Texscan	019,067
General Instrument	054	Philips	015,016,027,029,034,036,	Tocom	025,029,057,058,063
GI	012,013,023,031,032,033,		037,040,041,048,049	Unika	039,040,049
	038,044,075,076,077	Pioneer	026,028,052	Universal	059,060
Hamlin	011,012,020,021,042,056	Randtek	015,016	Viewstar	015,016,027,029,034,036,
Hitachi	045,051,054	RCA	008,035,074		037,040,041,048,049
Jerrold	012,013,023,031,032,033,	Regal	011,020,021	Warner Amex	052
	038,044,054,070,073	Regency	010,041	Zenith	022,050,065,069
LG(Goldstar)	006	Saewoo	007		
Macom	045,051	Samsung	000,011,030,052,071,072		

DVD Remote Control Codes

Curtis Mathes	009	Philips	007	Sharp	005
JVC	003	PROSCAN	008	Sony	004
LG(Goldstar)	001	RCA	008	Toshiba	002
Panasonic	006	Samsung	000		

11-2 New Features

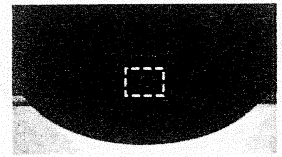
11-2-1 Power Saving Mode (Applies to the "Settings" of the User Menu)

1. Objectives
- To enhance a sensible visual quality by maintaining an appropriate screen brightness according to the ambient brightness and to reduce power consumption.
- To improve the power consumption efficiency when Power Saving Mode is selected.

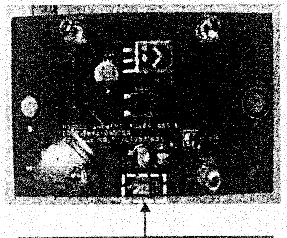
2. Details

The CPU PW318 of the Video Board takes the current ambient brightness (in Lux units) stored in the Ambient Light Sensor of the Power Assy., which is attached at the front of the PDP, at given intervals through SMBUS communication (identical to I2C) and controls the PDP module to operate with the appropriate illuminance. The I2C bus is used to communicate with the PDP module, and the communication method is the same as the existing communication method.

- Location of the Ambient Light Sensor

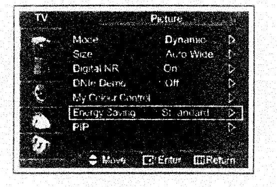


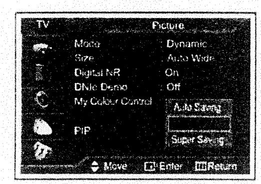
The sensor is attached to the Power Assy., which is on the front of the PDP. The location of the sensor on the Power Assy. is displayed in the figure below. External light reaches the sensor through the guide of the Power Assy.

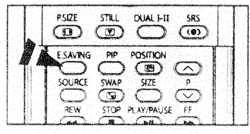


The Ambient Light Sensor IC
detects the amount of illumination.

The screen brightness is adjusted according to the brightness measured by the Ambient Light Sensor, using the Multi APC function (controls the number of sustain pulses according to the average signal levels) of the PDP panel, thus reducing power consumption.


TV Picture
Mode : Dynamic
Size : Auto Wide
Digital NR : On
DNIe Demo : Off
My Colour Control
Energy Saving : Standard
PIP
Move
Enter
Return


TV Picture
Mode : Dynamic
Size : Auto Wide
Digital NR : On
DNIe Demo : Off
My Colour Control
PIP
Auto Saving
Super Saving
Move
Enter
Return


P.SIZE
STILL
DUAL I-II
SRS
E.SAVING
PIP
POSITION
SOURCE
SWAP
SIZE
P
REW
STOP
PLAY/PAUSE
FF

1 Press the MENU (☐) button.

Result: The main menu is displayed.

2 Press the … or † button to select Picture .

Result: The Picture menu is displayed.

3 Press the ENTER (⏎) button.

4 Press the … or † button to select Energy Saving .
Press the ENTER (⏎) button.

5 Select the required option by pressing the … or † button.

Result: The following options are available.

- ◆ Auto Saving: Automatically adjusts to the surrounding illumination.
- ◆ Standard: Operates in standard mode regardless of the surrounding illumination.
- ◆ Super Saving: Enters maximum power saving mode regardless of the surrounding illumination.

6 Press the ENTER (⏎) button.

➢ This feature is not available when the input source is in PC or HDMI mode.

➢ You can select these options by simply pressing the E.SAVINGbutton on the remote control.

11-2-2 PIP Settings (X - This PIP combination is not available, O - This PIP combination is available)

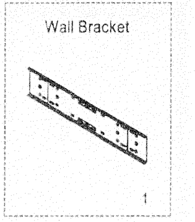
Sub \ Main	TV	Ext.1	Ext.2	AV	S-Video	Component	PC	HDMI
TV	X	O	O	O	O	O	O	O
Ext.1	O	X	O	O	O	O	O	O(RGB Excluded)
Ext.2	O	O	X	O	O	O	O	O
AV	O	O	O	X	O	O	O	O
S-Video	O	O	O	O	X	O	O	O
Component	X	X	X	X	X	X	X	X
PC	X	X	X	X	X	X	X	X
HDMI	X	X	X	X	X	X	X	X

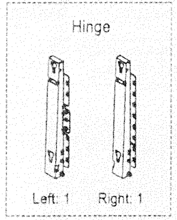
11-3 Installation Notes and Precautions

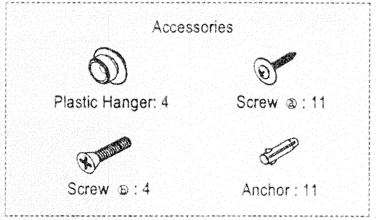
11-3-1 Installation Notes

1. Contact a technician for installing the wall bracket.
2. Samsung Electronics is not responsible for any damage to the product or injury to yourself or others if you elect to perform the wall installation.
3. This product is for installing on cement walls. The product may not stay in place when installed on plaster or wood.

11-3-2 Parts (Wall attachment panel is sold separately)

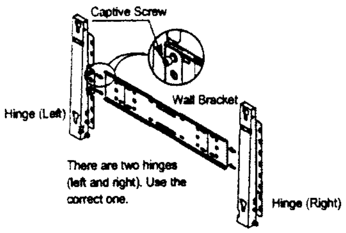

Wall Bracket
1


Hinge
Left: 1
Right: 1

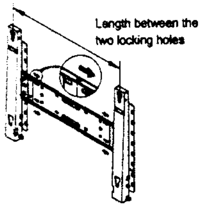

Accessories
Plastic Hanger: 4
Screw ⓐ : 11
Screw ⓑ : 4
Anchor : 11

11-3-3 How to assemble the Wall Mount Bracket

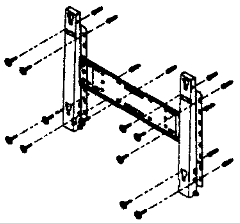
1 Insert and tighten the Captive Screw in the direction of the arrow.
When done, mount the wall bracket on the wall.



2 Before drilling into the wall, check if the length between the two locking holes at the back of the product is correct.
If the length is too short or long, loosen all or some of the 4 screws on the wall bracket to adjust the length.

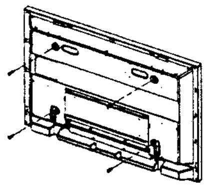


3 Check the installation diagram and mark the drill points on the wall. Use the 5.0 mm bit to drill holes deeper than 35 mm.
Fix each anchor in the corresponding hole.
Match each of the brackets and hinge holes to the corresponding anchor holes and insert and tighten the 11 screws ⓐ.

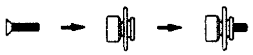


11-3-4 Fixing the TV panel to the wall attachment panel bracket

1 Remove the 4 screws on the back of the product.

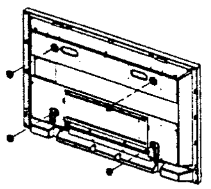


2 Insert the screw ⓑ into the plastic hanger.
(See the figure below)

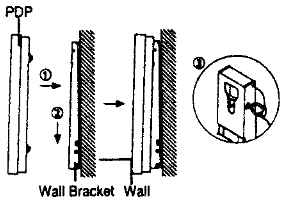


- Mount the product on the wall bracket and make sure it is properly fixed to the left and right plastic hangers.
- Be careful when installing the product on the bracket as fingers can be caught in the holes.
- Make sure the wall bracket is securely fixed to the wall, or the product may not stay in place after installation.

3 Tighten the 4 screws in step 2 (plastic hanger + screw ⓑ) to the rear holes of the product.

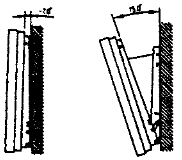


4 Remove safety pin (#) and insert the 4 product holders into the corresponding bracket holes (!). Then place the product (@) so that it is firmly fixed to the bracket. Make sure to reinsert and tighten the safety pin (#) to securely hold the product to the bracket.



11-3-5 How to Adjust Mounting Angle

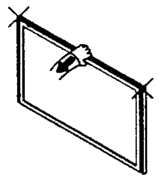
➢ Adjust the bracket angle to -2° before installing it on the wall.



1 Fix the product to the wall bracket.

2 Hold the product at the top in the center and pull it forward (direction of the arrow) to adjust the angle. (See the figure to the right)

3 You can adjust the bracket angle between -2° and 15°.



Make sure to use the top center, and not the left or the right side of the product to adjust the angle.

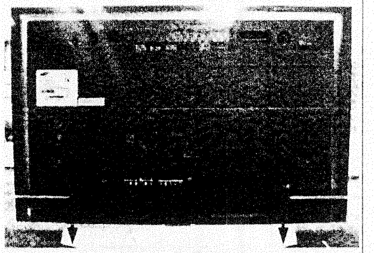
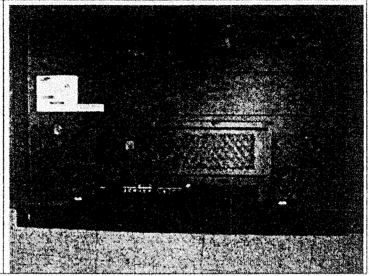
12. Disassembly & Reassembly

12-1 Overhaul Disassembly & Reassembly

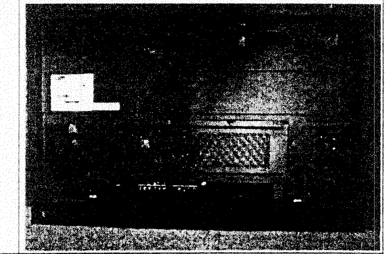
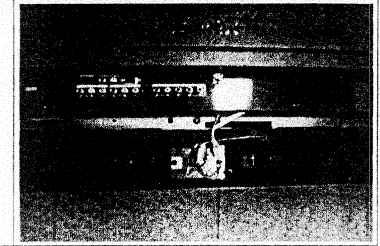
⚠ Caution

- Be sure to separate the power cord before disassembling the unit.
- Discharge the capacitors first when separating PCB's with high capacity capacitors such as SMPS, X Drive Board, Y Drive Board, etc. (Sparks may be generated by an electric charge, and there is a danger of electronic shock.)
- Check that the cables are properly connected referring to the circuit diagram, when disassembling or assembling the unit and take care not to damage the cables.
- Take care not to damage the Glass Filter at the front.
- Assemble the boards in the reverse order of the disassembly.

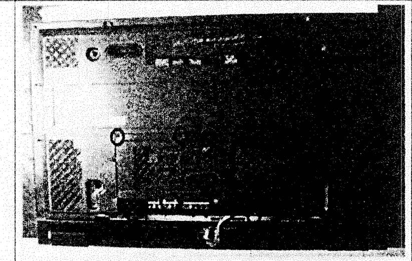
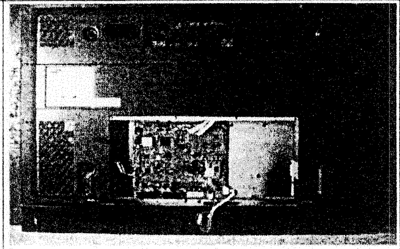
12-1-1 Separation of Stand

Part Name	Description	Description Photo
Stand	① Place the unit down and remove the 4 screws to separate the stand. : BH,+,S,M4,L35,ZPC(BLK) 6009-001432 ⚠Caution: Take care not to damage the front glass when placing the unit down.	
	② Loosen and remove the screws and Stand remove.	

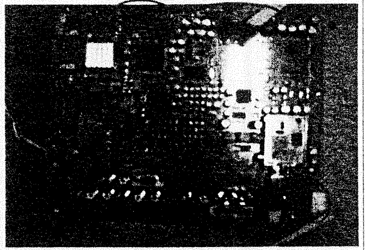
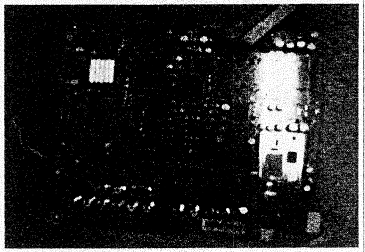
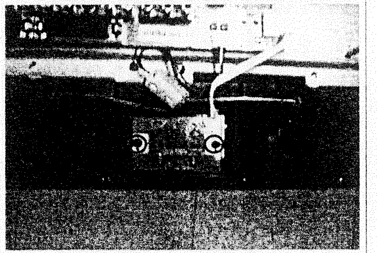
12-1-2 Separation of Cable Holder

Part Name	Description	Description Photo
Cable Holder	① Loosen and remove the 6 screws.	
	② Loosen and remove the screws and Cable Holder remove.	

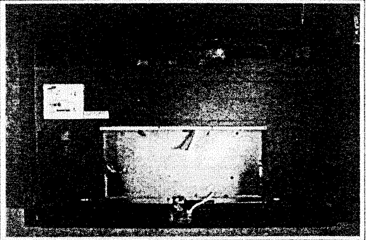
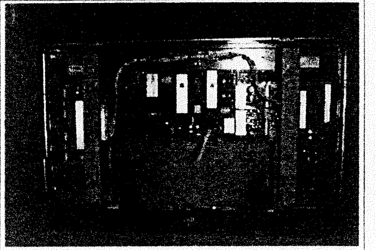
12-1-3 Separation of Sub Cover Back

Part Name	Description	Description Photo
Sub Cover Back	① Remove all marked screws	
	② Loosen and remove the screws and Cable Holder remove.	

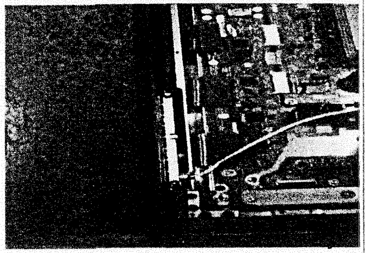
12-1-4 Separation of Audio Board

Part Name	Description	Description Photo
Audio Board	① Separate the cables connected to the Main Board remove	
	② Loosen and remove the 4 screws.	
	③ Separation of Power Button,Ambient Light Sensor,IR Receiver PCB.	

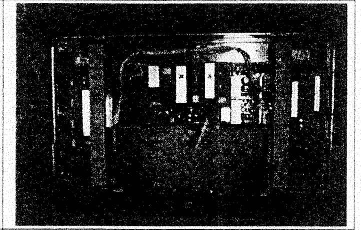
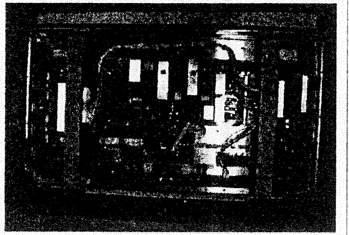
12-1-5 Separation of Back Cover

Part Name	Description	Description Photo
Back Cover	① Remove all marked screws	
	② Take care not to damage the back cover when removing it.	

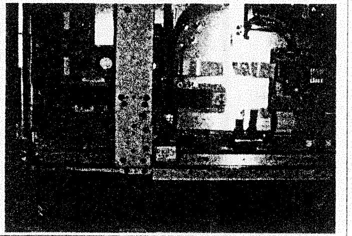
12-1-6 Separation of Function Key

Part Name	Description	Description Photo
Function Key	① Remove all marked screws	

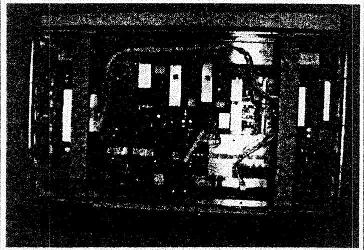
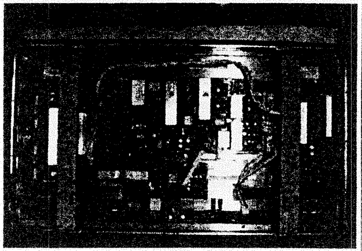
12-1-7 Separation of Audio Board Sub Back

Part Name	Description	Description Photo
Audio Board Sub Back	①Remove all marked screws	
	②Remove the Sub Back.	

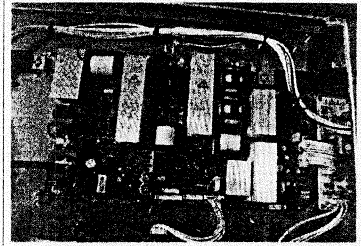
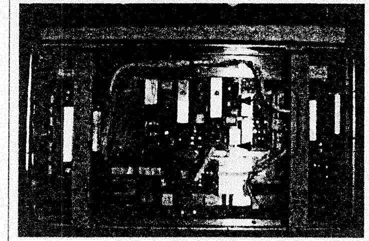
12-1-8 Separation of Power Inlet socket

Part Name	Description	Description Photo
Power Inlet socket	① Loosen and remove the 2 screws.	

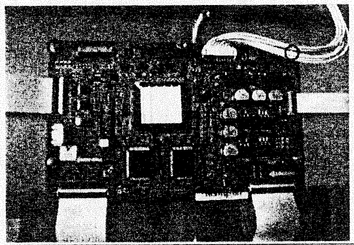
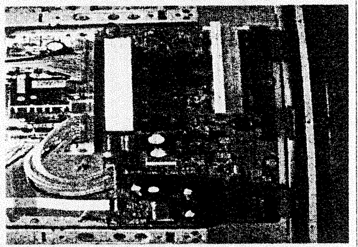
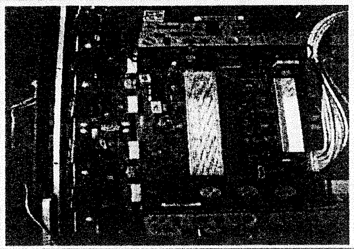
12-1-9 Separation of Speaker

Part Name	Description	Description Photo
Speaker	① Separate the cables connected to the Logic Board and then remove the 4 screws. : FH,+,M3,L10,NI PLT,SWRCH 18A,FP 6001-000321	
	② Remove the speaker by carefully pulling it out with your hands the speaker may cause damage to it.	

12-1-10 Separation of Main SMPS, DC-DC SMPS

Part Name	Description	Description Photo
	① Separate the cables connected to the Main SMPS first and then remove the screws.	
	② Separate the cables connected to the DC-DC SMPS and then remove the screws.	

12-1-11 Separation of LogicBoard, X DriveBoard, Y Drive Board, Buffer Board , Address Buffer Board

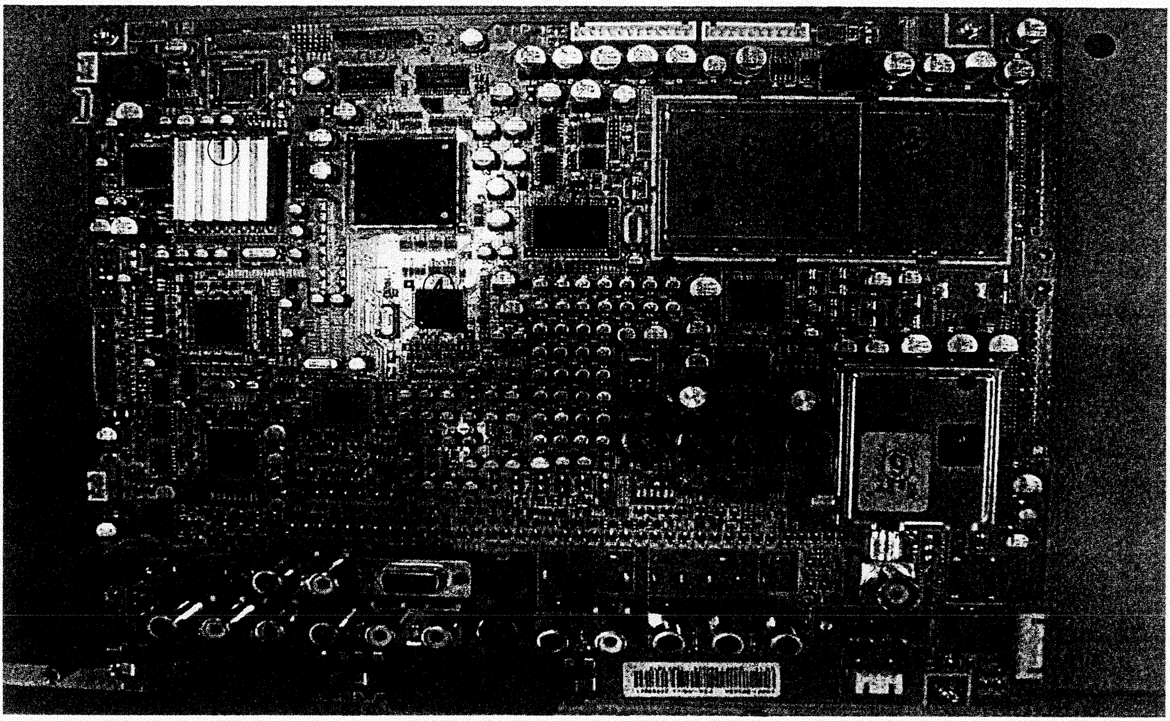
Part Name	Description	Description Photo
Board	① Separate the cables connected to the Logic Board and then remove the screws.	
	② Separate the cables connected to the X Drive Board and remove the screws.	
	③Separate the cables connected to the Y Drive Board and remove the screws.	
	④Separate the Y Buffer Board and the Address Buffer Board depending on the problem	

MEMO

13. Circuit Description

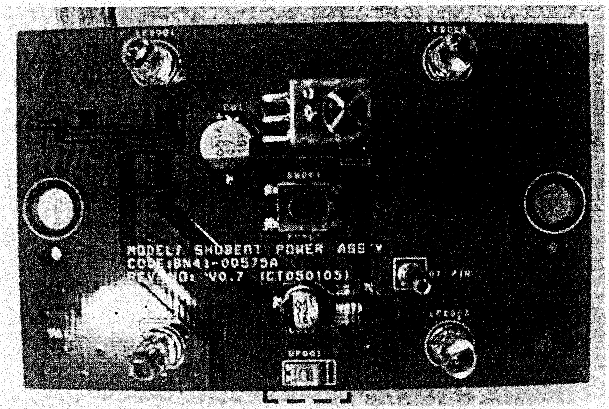
13-1 Partial Block Description

13-1-1 Main Board



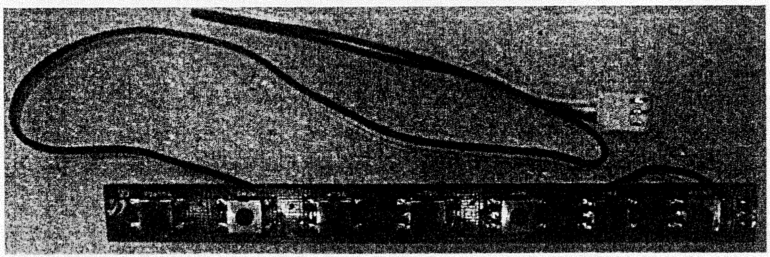
No	Name	Function	Description
①	SVP-EX62	main Video Decorder+Deinterlacer+Scaler	A Scaler IC that generates the output resolution appropriate to the PDP panel and generates the PIP screen.
②	DNIe-L	Image Enhancer	The DNIe IC for visual quality improvement.
③	M30620SPGP	main Micom	Generates various control signals required for operating the circuit.
④	SAA7119	sub Video Decorder	The Video Decoder IC that converts the Y/C and Scart RGB signals for the main screen into 10 bit digita R, G, B signals.
⑤	SIL9993	HDMI Decorder	Converts the TMDS signal on the HDMI input into 8 bit digital R, G, B signals
⑥	S3F8668	sub Micom	Detects the Power on/off signal from the remote control and the Power button and turns SMPS on or off, handles the Caption signal, and controls the signal for the LEDs on the front panel.
⑦	MSP4410G	Sound processor	Sound Processing IC
⑧	NSP6241	Sound Effect chip	Sound PWM IC
⑨	TMQZ6-405A	Tuner	Tuner CH Tuning and CVBS, SIF

13-1-2 Power Button Board


MODEL: SHUBERT POWER ASS'Y
CODE:BN41-00575A
REV.NO: V0.7 (CT050105)

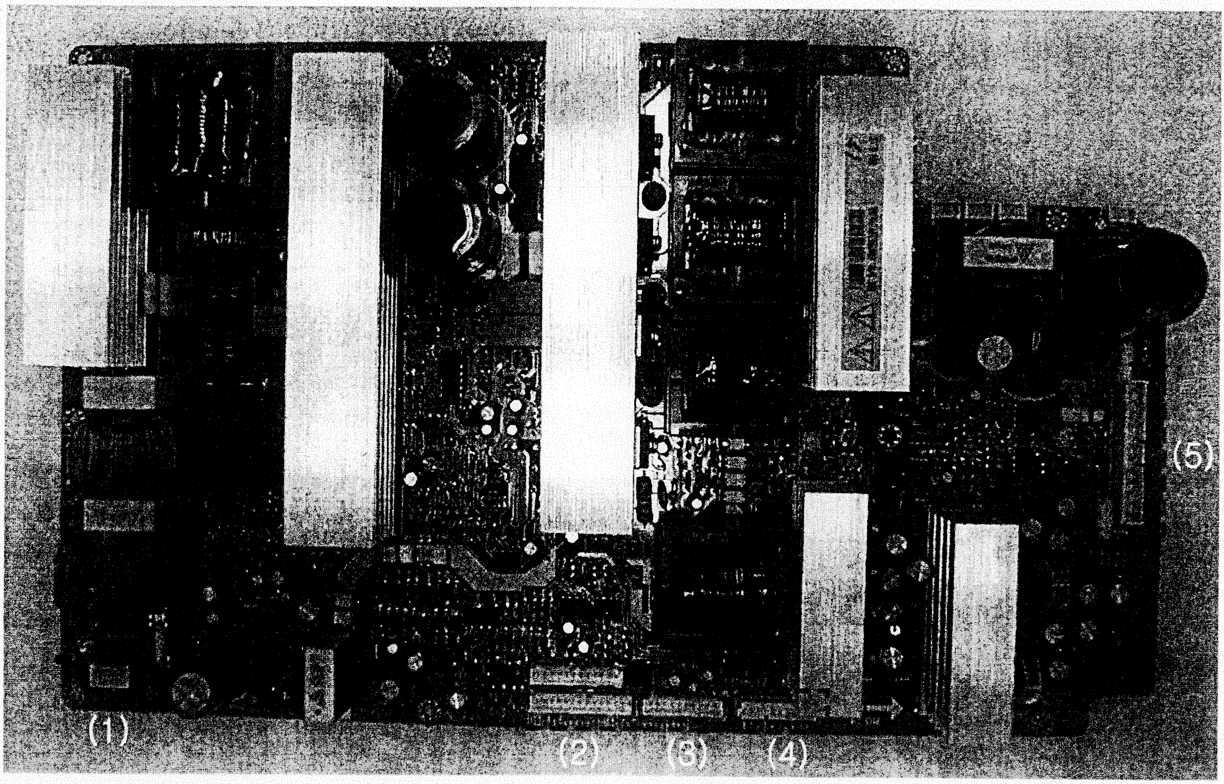
(1) RM01: Remote Control Sensor.
(2) SW001: Power button
(3) OP001: The Illumination sensor that senses the quantity of light. It senses the illumination and automatically adjusts the screen brightness according to the surrounding brightness when the Power Saving Mode of the User menu is set to Auto.

13-1-3 Function Key Board



Function Key. Located on the side of the unit.

13-2-4 Main SMPS



(1) CN800: AC IN (90 ~ 264V)

(2) CN804-2 (MAIN SMPS) ↔ CN109(READY B'D)	
Pin No	Signal
1 ■	FAN-D
2	FAN-ON
3	STB5V
4	RTN
5	PS-ON
6	12V
7	RTN
8	RTN
9	VCA
10	VCS
11	RTN
12	5.3V
13	RTN
14	5.3V

(3) CN803(MAIN SMPS) ↔ CN108(READY B'D)	
Pin No	Signal
1 ■	RTN
2	VT(33V)
3	RTN_AMP
4	RTN_AMP
5	18V_AMP
6	18V_AMP
7	RTN
8	12V
9	RTN
10	6V

(4) CN810(Main SMPS) ↔ CN2013(Logic B'D)	
Pin No	Signal
1 ■	5.3V
2	5.3V
3	RTN
4	RTN
5	5.3V
6	RTN
7	PS-ON
8	N.C
9	VS-ON
10	STB 5V

(5) CN809(Main SMPS) ↔ CN3(DC-DC SMPS)	
Pin No	Signal
1 ■	5.3V
2	Vg
3	RTN
4	RTN
5	RTN
6	RTN
7	RTN
8	Va
9	Va
10	N.C
11	Vs
12	Vs

※ CN811, CN806, CN807 and CN808 are not used.

1. Outline (PDP 42inch/50inch SMPS)

Considering various related conditions, the switching regulator with good efficiency and allowing for its small size and light weight was used as the power supply for PDP 42inch(Schubert)/50inch(Strauss), VS requiring high power consumption Asymmetrical Half Bridge converter and flyback converter. To comply with the international harmonics standards and improve the power factor, active PFC(Power Factor Correction) was used to rectify AC input into +400V DC output, which in turns used as input to the switching regulator.

2. Input

The power supply shall be capable of supplying full rated output power over free voltage ranges that are rated 100 VAC - 240 VAC RMS nominal. Operating voltage : 90 VAC - 264 VAC

The power supply must be able to start up under peak loading at 90V AC. The power supply shall automatically recover from AC power loss. (Note that nominal voltages for test purposes are considered to be with +/- 1.0V of nominal).

STD_5V & Vpr2(3.3V) is a SELV standby voltage that is always present when AC mains voltage present.

3. Output

Output Name	Output Voltage	Output Current(Max.)	Using in PDP Driving
VS	+190V ~ 220V (210V)	2.0A	Sustain Voltage of Drive Board
VA	+60V ~ 80V (70V)	3.0A	Address Voltage of Drive Board
D5.3V	+5.3V	5.0A	
A6.5V	+6.5V	3.0A	
FAN_9V	+9V	0.2A	
VG	+15V	1.0A	
D12V	+12V	1.5A	
A12V	+5.3V	0.5A	
18VAMP	+18V	2.5A	Amp Voltage of Audio Board
VT	+33V	0.006A	
STD_5V	+5V	1.0A	Standby for Remote Control

4. Over Voltage Protection

The over voltage sense circuitry and reference shall reside in package that are separate and distinct from the regulator control circuitry and reference. No single point fault shall be able to cause a sustained over voltage condition on any of all outputs.

The supply shall provide latch-mode Over Voltage Protection as defined below.

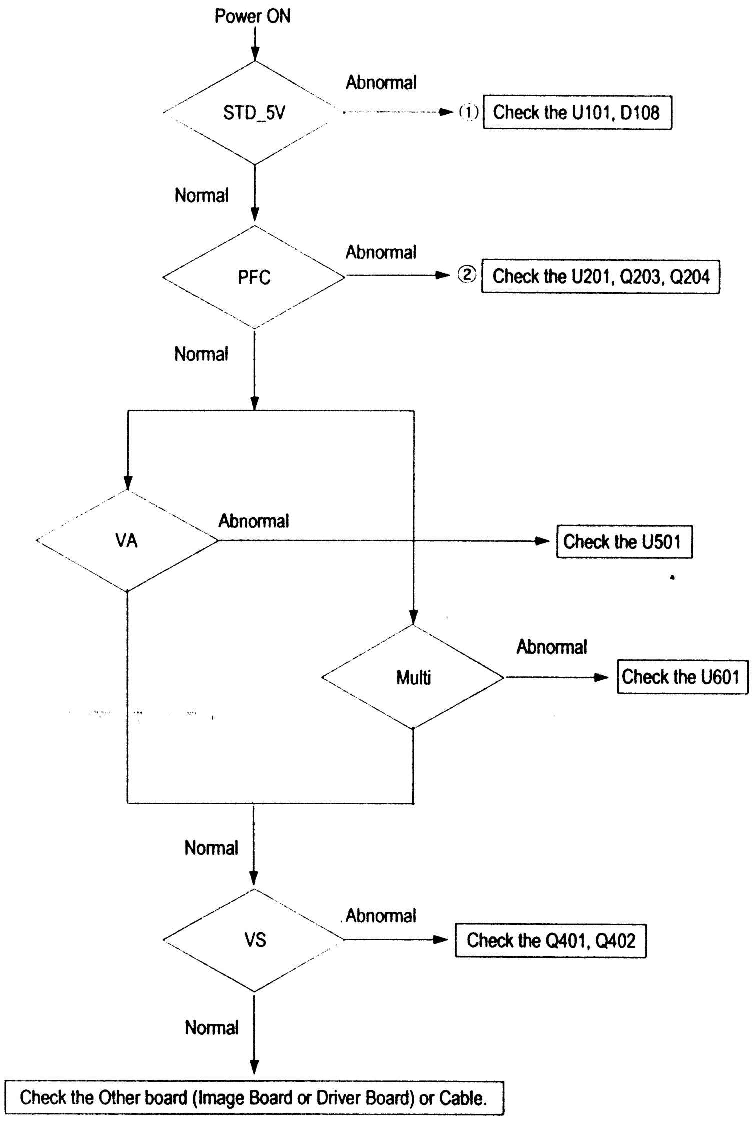
Parameter	Min	Unit
VS(210V)	250 ~	V
VA(70V)	100 ~	V
VCC(+5.3V)	6.8 ~	V

5. Short Circuit and Over current Protection

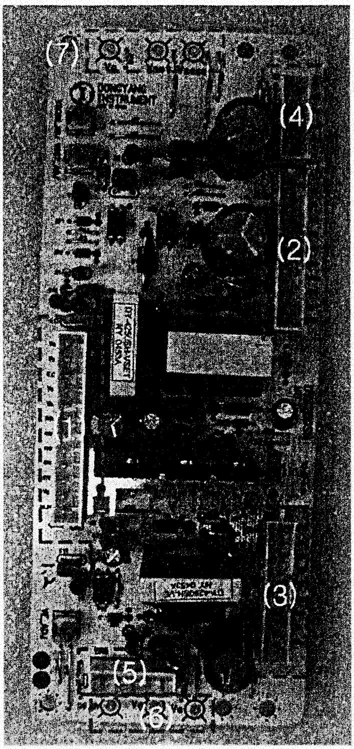
An output short circuit is defined as output impedance of less than 300mohms. The power supply shall shutdown and latch off for shorting VS DC rails to return. Shorts between main output rails and STD_5V shall not cause any damages to the power supply. The power supply shall either shutdown and latch off for shorting is removed, the P/S shall recover. The power supply shall be capable of withstanding a continuous short-circuit to the output without damage or over stress to the unit (components, PCB traces,connectors,etc.) under the input conditions specified in Section 3 above. Current Protection as defined below.

Output	Over Current Limit	Unit
VS(210V)	20A, Constant Current.(TBD)	A
VA(70V)	10A, Constant Current.(TBD)	A
Output except Vs,Va	No damage (Auto Recovery or Shut down.)	A

6. Troubleshooting


Power ON
STD_5V
Abnormal
(1)
Check the U101, D108
Normal
PFC
Abnormal
②
Check the U201, Q203, Q204
Normal
VA
Abnormal
Check the U501
Multi
Abnormal
Check the U601
Normal
VS
Abnormal
Check the Q401, Q402
Normal
Check the Other board (Image Board or Driver Board) or Cable.

13-1-5 DC-DC SMPS



(1)
CN809(Main SMPS)
↔
CN3(DC-DC SMPS)

Pin No	Signal
1 ■	5.3V
2	Vg
3	RTN
4	RTN
5	RTN
6	RTN
7	RTN
8	Va
9	Va
10	N.C
11	Vs
12	Vs

(4), (5)
CN1, CN6
(DC-DC SMPS)
↔
CN2501(E-Buffer),
CN2701(G-Buffer)

Pin No	Signal
1 ■	RTN
2	N.C
3	5.3V
4	N.C
5	Va

(2)
CN2(DC-DC SMPS)
↔ CN5007(Y B'D)

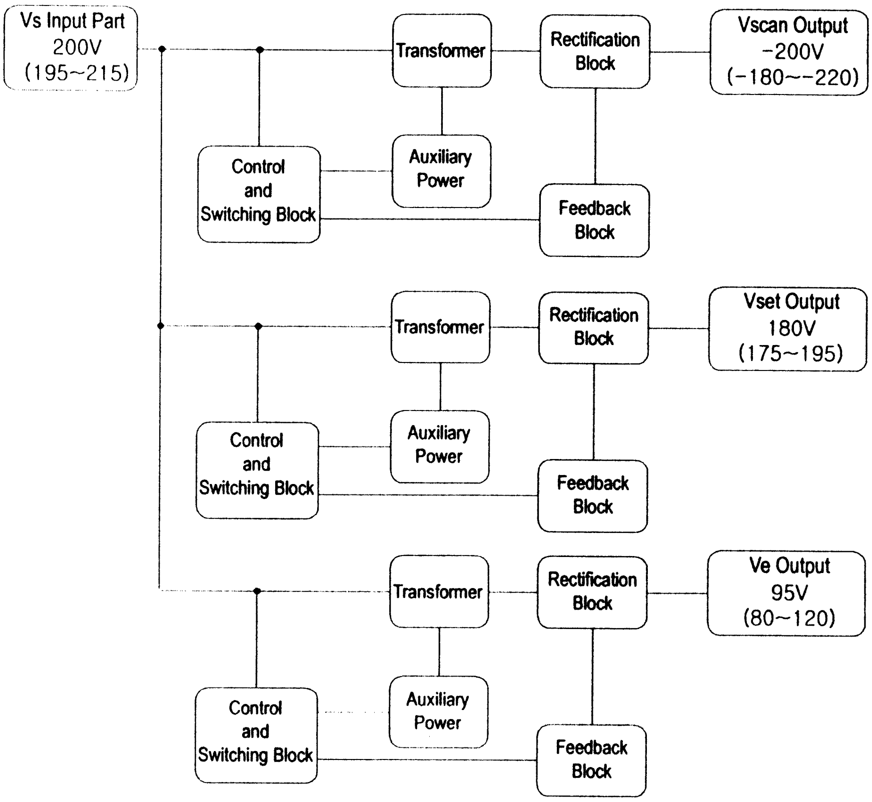
Pin No	Signal
1 ■	Vs
2	Vs
3	RTN
4	RTN
5	Vset
6	RTN
7	Vscan
8	RTN
9	Vg
10	5.3V

(3)
CN4(DC-DC SMPS)
↔ CN4000(X B'D)

Pin No	Signal
1 ■	Vs
2	Vs
3	RTN
4	RTN
5	Ve
6	RTN
7	RTN
8	Vg
9	5.3V

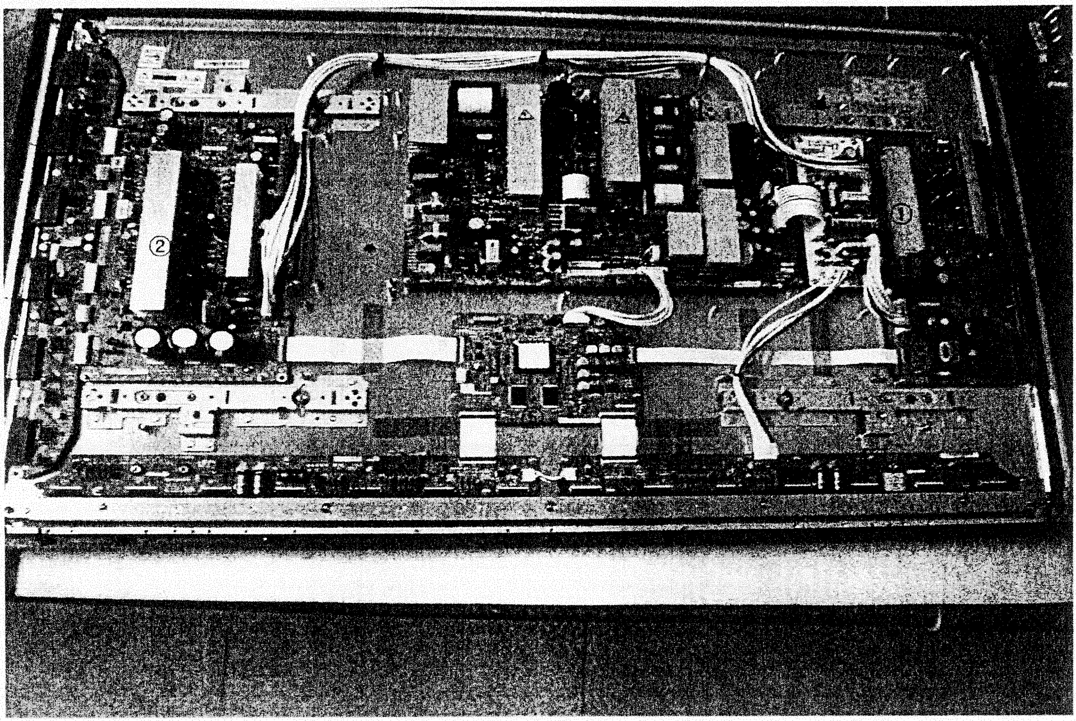
(6) D5.3V, Vg, Ve Test Point
(7) Va, Vset, Vscan Test Point

1. Block Diagram


Vs Input Part
200V
(195~215)
Transformer
Rectification Block
Vscan Output
-200V
(-180~-220)
Control and Switching Block
Auxiliary Power
Feedback Block
Transformer
Rectification Block
Vset Output
180V
(175~195)
Control and Switching Block
Auxiliary Power
Feedback Block
Transformer
Rectification Block
Ve Output
95V
(80~120)
Control and Switching Block
Auxiliary Power
Feedback Block

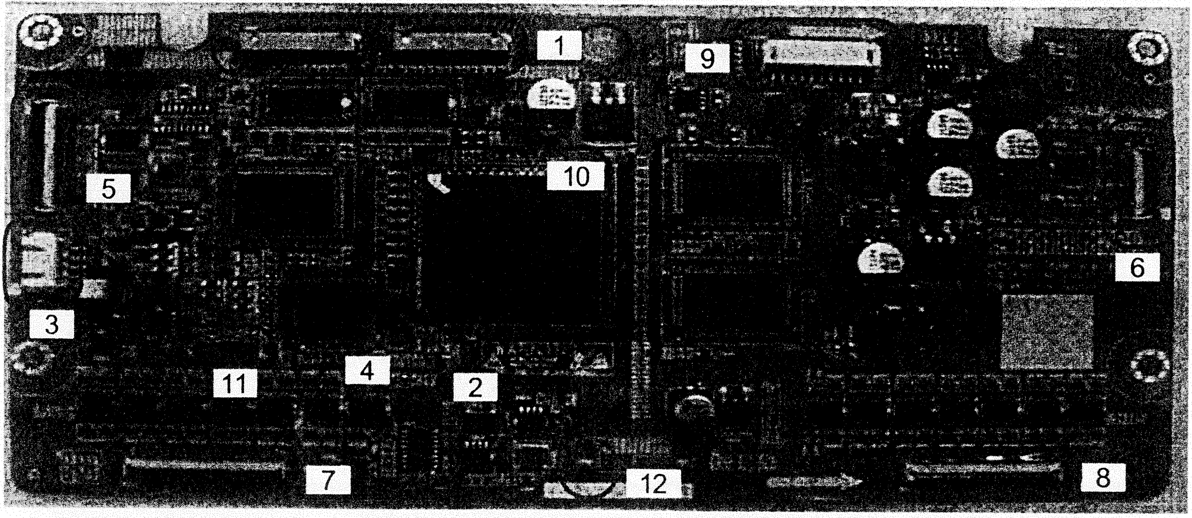
DC DC SMPS receives Vs input (195~215V) from the Main SMPS and the necessary Vscan, Vset and Ve voltages are output to operate the PDP Module as shown in the block diagram above.

13-1-6 PDP Module



No	Name	Parts Code	Description
1	ASSY PDP P-X MAIN BOARD	BN96-02038A	X Drive Board
2	ASSY PDP P-Y MAIN BOARD	BN96-02039A	Y Drive Board
3	ASSY PDP P-Y BUFF UPPER BOARD	BN96-02040A	Y Buffer Upper Board
4	ASSY PDP P-Y BUFF LOWER BOARD	BN96-02041A	Y Buffer Lower Board
5	ASSY PDP P-LOGIC BOARD	BN96-02042A	Logic Board
6	ASSY PDP P-ADDRESS E BUFF BOARD	BN96-02043A	Address E Buffer Board
7	ASSY PDP P-ADDRESS F BUFF BOARD	BN96-02044A	Address f Buffer Board

■ A name of main part of Logic Board and vocabulary.



Item	Name	Explanation
①	LVDS Connector	The connector to receive the RGB, H, V, DATAEN and DCLK signals that have been LVDS encoded through the video board. At present, there are 2 LVDS, both internal and external, and only LVDS will be provided in the final version of the board.
②	Operating Status LED	The LED that shows whether the Sync and Clock signal is properly supplied to the logic board (Normal Status: Blinks at 0.8 second intervals)
③	I2C Connector	The connector for the Key Scan board that checks and controls the 512K data.
④	MICOM(ARM-PROCESSOR)	512K including the Gamma Table, APC Table, drive waveform timing and other options is saved to internal flash memory.
⑤	Y Connector	The connector to output the control signal for the Y drive board.
⑥	X Connector	The connector to output the control signal for the X drive board.
⑦	CN2075(E-Adderss Buffer Connector)	The connector to output the address data and the control signal to the E-buffer board.
⑧	CN2076(F-Adderss Buffer Connector)	The connector to output the address data and the control signal to the F-buffer board.
⑨	Power Connector	The connector to receive power (5V, 3.3V) for the Logic board.
⑩	ASIC CHIP	The main processor that generates and outputs the logic drive signal and the address data.
⑪	MICOM LOADING 5PIN CONNECTOR	The connector to load the Micom drive program. The program is loaded by connecting to the GA-WRITER.
⑫	VTOGG	TP for V Sync Check

■ About Logic Board

The Logic Board consists of a Logic Main board, which processes the video signal input through LVDS and creates the address driver output and XY drive signals, and a Buffer board, which buffers the output signal and outputs the signal to the Address Driver IC (TCP IC).

Logic Board		Function	Remark
Logic Main		- Video Signal Processing (W/L, error diffusion, APC) - Outputs the Address Driver Control and Data Signals to the Buffer board. - Outputs the XY Drive Board Control Signal	
Buffer Board	E Buffer Board	Outputs data and control signals to the bottom left TCP IC.	
	F Buffer Board	Outputs data and control signals to the bottom right TCP IC.	

■ Major Check Points and Waveforms

- The waveform during a Normal Operation

When the PDP set and the Logic Board are properly operating, the Operation Status LED blinks at approximately 0.8 second interval as shown in Figure 1.

If the set is out of order, check the Operation Status LED first, and check that the output waveform is normal using an oscilloscope.

Check if the waveform is the same as shown in Figure 2 by connecting the oscilloscope to the No. 12 TP in Figure 1. Check if the waveform is the same as in Figure 3 by connecting the oscilloscope to the connector that is connected to the Buffer board. If the measured waveform is different from the following waveforms, the board must be replaced.

To check the waveforms, refer to the following waveform patterns.

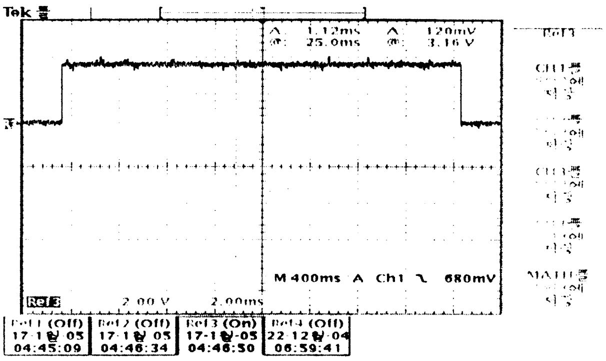

Tek
Δ: 1.12ms
Δ: 120mV
@: 25.0ms
@: 3.16 V
M 400ms A Ch1 ⟍ 680mV
Ref3
2.00 V
2.00ms
Ref1 (Off)
Ref2 (Off)
Ref3 (On)
Ref4 (Off)
04:45:09
04:46:34
04:46:50
06:59:41

Figure 2. Normal V-SYNC Output Waveform

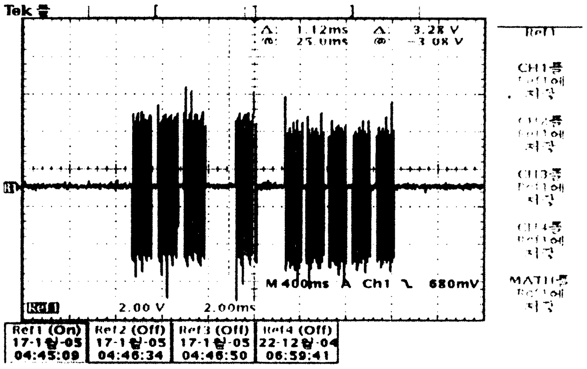
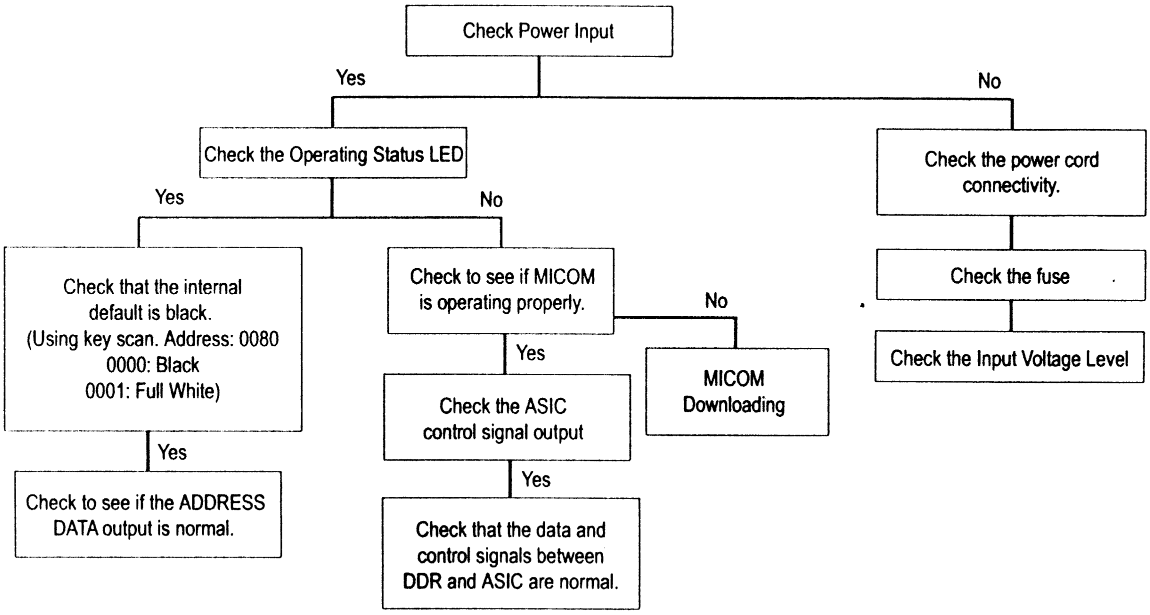

Tek
Δ: 1.12ms
Δ: 3.28 V
@: 25.0ms
@: -3.08 V
M 400ms A Ch1 ⟍ 680mV
Ref1
2.00 V
2.00ms
Ref1 (On)
Ref2 (Off)
Ref3 (Off)
Ref4 (Off)
04:45:09
04:46:34
04:46:50
06:59:41

Figure 3. Normal Address Data Output Waveform

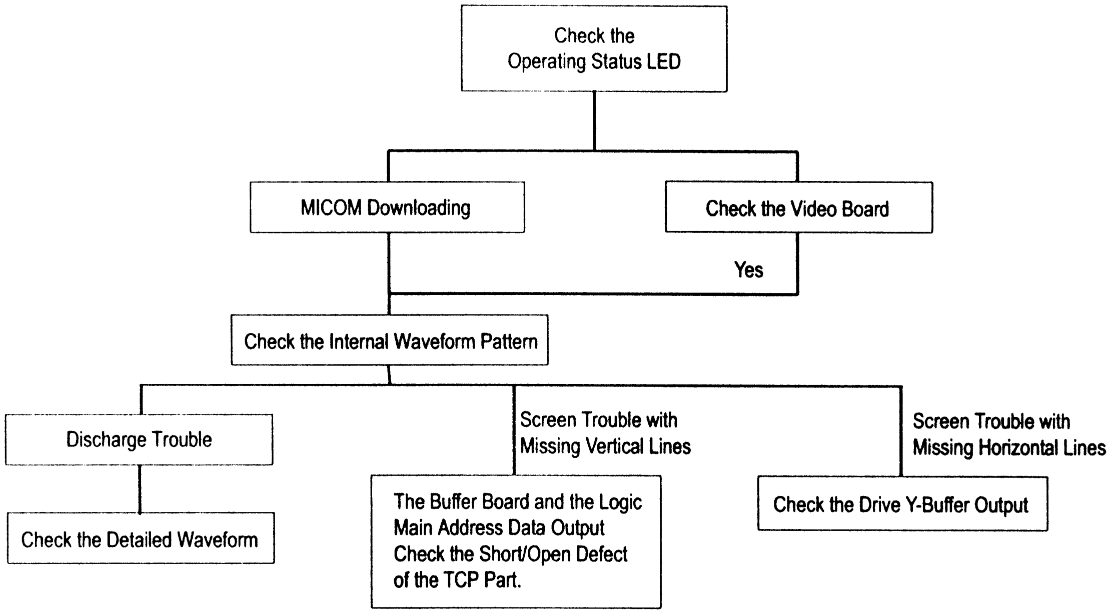
■ Troubleshooting

There are various problems caused by the Logic Board and these have been classified by the Flow Chart.

- No picture on the screen


Check Power Input
Yes
No
Check the Operating Status LED
Check the power cord connectivity.
Yes
No
Check that the internal default is black.
(Using key scan. Address: 0080
0000: Black
0001: Full White)
Check to see if MICOM is operating properly.
No
Check the fuse
Check the Input Voltage Level
Yes
MICOM Downloading
Check the ASIC control signal output
Yes
Check to see if the ADDRESS DATA output is normal.
Yes
Check that the data and control signals between DDR and ASIC are normal.

- Screen Error


Check the Operating Status LED
MICOM Downloading
Check the Video Board
Yes
Check the Internal Waveform Pattern
Discharge Trouble
Screen Trouble with Missing Vertical Lines
Screen Trouble with Missing Horizontal Lines
Check the Detailed Waveform
The Buffer Board and the Logic Main Address Data Output Check the Short/Open Defect of the TCP Part.
Check the Drive Y-Buffer Output

1. X, Y Control Block

■ Drive Circuit Definition

The Drive Circuit is a circuit that generates a waveform (high-voltage pulse) for the X and Y electrode group of the panel's external port so as to control the panel. The high-voltage switching pulse is generated through the combination of the IC HYBRID (Drive block + IGBT) and FET.

■ Drive Circuit Mechanism

A picture is displayed on the PDP by applying voltage to the X, Y and ADDRESS electrodes of each pixel according to the appropriate condition. The drive waveform applied to 42HD V4 is of the ISSS (ISSS: Interweaving Scan and Selective Sustain with Scan IC) type and has IDS (InDependent Sustain) in the Scan section unlike the existing ADS. Discharges within a PDP pixel can be classified into 3 types:

① Address Discharge: To form a wall voltage within the pixel by giving information (applying DATA voltage) to the pixel to be lit.

② Sustain Discharge: Sustain Discharge is a display section that voluntarily maintains the discharge of the pixels whose wall· voltage has been formed by the Address Discharge. (Optical output for displaying a picture is generated).

③ Erase Discharge: To selectively perform Address Discharge for each pixel, all pixels on the panel should be in the same status (the wall electric charge status and space electric charge status must be the same). Therefore, the Erase Discharge section is an important component for guaranteeing the drive margin, and is implemented by various methods such as applying a log waveform. However, the current 42HD V4 has adopted a wall voltage control through an RA (Repeated Auto-quenching) reset that separates the discharge area and performs switching to perform an efficient erase operation, while the gradient was the same in the RAMP section in the existing approach.

1) Address Discharge

A discharge that is caused by the difference between the plus electric potential (Va apply voltage of 65~70V + Positive Wall Charge) of the electrode and the negative electric potential (Applied GND Level + Negative Wall Charge) of the Y electrode. The Address discharge forms a wall voltage within the pixel to display color (to be discharged) before the Sustain Discharge period. That is, the pixel whose wall charge has been formed by the Address Discharge forms a Sustain Discharge vis the following Sustain pulse.

2) Sustain Discharge

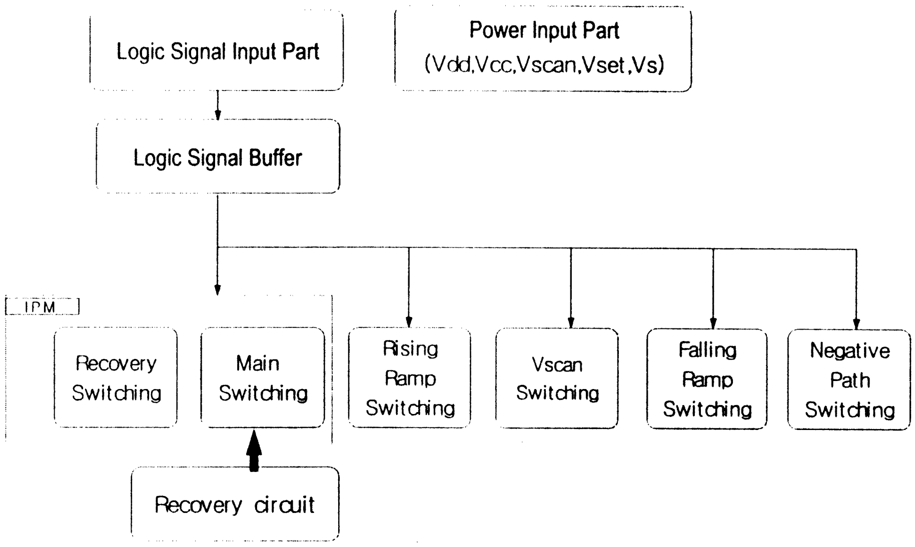
A Sustain Discharge is a Self-Sustaining Discharge formed by the accumulation of the electric potential of the Sustain pulse (generally 200 ~ 210 Volt) alternating over the X and Y electrodes during the sustain period, and the wall charge depending on whether the pixel has previously been discharged or not. That is, it is controlled by the memory characteristics, one of the basic characteristics of the AC PDP (in that the past operating conditions determine the current status). That is, if a wall voltage exists on the pixel (if the pixel is on), a discharge is formed again because the applied voltage, which is the sum of the following applied Sustain voltage and the wall voltage, is higher than the discharge threshold voltage. If no wall voltage exists on the pixel (if the pixel is off), a discharge will not occur because the Sustain voltage is not higher than the discharge threshold voltage. The Sustain Discharge period is the period for generating actual optical output so as to display a picture on the PDP screen.

3) Erase Discharge

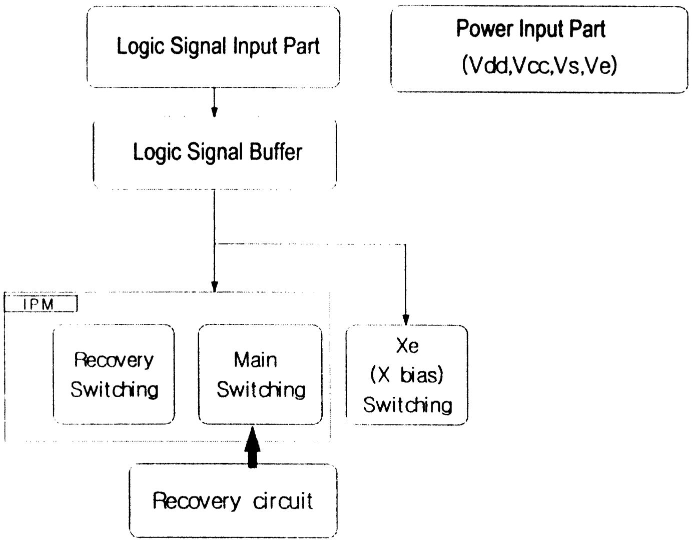
The purpose of a Reset (Erase) Discharge is to create uniformity of the wall voltage within all panel pixels. It evens the wall voltages regardless of the Sustain Discharge in the previous stage. The Erase Discharge has to remove the wall voltage introduced by the Sustain Discharge by supplying ions or electrons by a discharge. When the wall voltage is removed through a discharge, the time when the reverse polarity is applied to the wall voltage (fine width erasing) is to be limited or ions or electrons are to be supplied by a weak discharge (low voltage erasing) so as to prevent a wall charge in reverse polarity.
There are 2 known weak discharge (low-voltage) erase methods. 1) A log waveform adopted by F company and 2) a weak erase discharge via a ramp waveform adopted by Matsushita and other companies. Both methods control the externally applied voltage by the difference of the wall voltage of the pixel by applying the rising gradient of the erasing waveform slowly, because the discharge begins when the sum of the existing remaining wall voltage and the rising waveform voltage exceeds the drive threshold voltage. In addition, a weak discharge is introduced, because the applied voltage is low.

■ Drive Circuit Operating Block Diagram

- Y Drive Board


Logic Signal Input Part
Power Input Part
(Vdd,Vcc,Vscan,Vset,Vs)
Logic Signal Buffer
IPM
Recovery Switching
Main Switching
Rising Ramp Switching
Vscan Switching
Falling Ramp Switching
Negative Path Switching
Recovery circuit

- X Drive Board

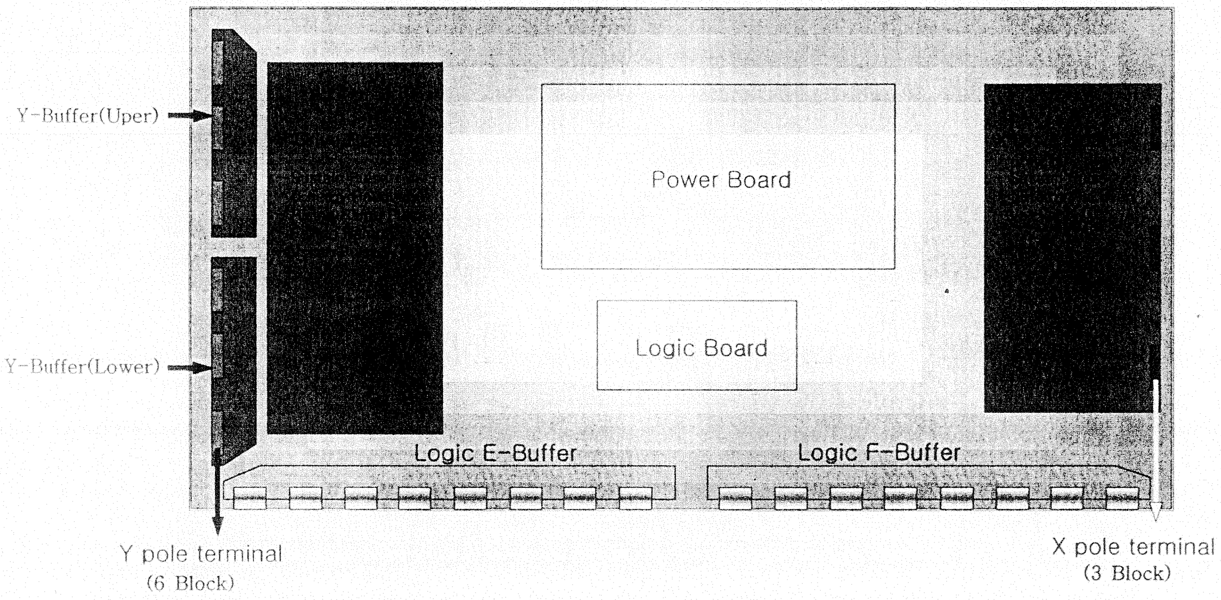

Logic Signal Input Part
Power Input Part
(Vdd,Vcc,Vs,Ve)
Logic Signal Buffer
IPM
Recovery Switching
Main Switching
Xe
(X bias)
Switching
Recovery circuit

■ Requisite Components Necessary for Drive Board Operation

- Power : Supplied from the power board. The optimal value may differ from the following:
  - a) Vs : 205V - Sustain
  - b) Vset : 195V - Y Rising Ramp
  - c) Ve : 100V - Ve bias
  - d) Vscan : -190V - Scan low bias
  - e) Vnf : -175V - Y falling Ramp (Created by the DC-DC power block of the Y Drive board)
  - f) Vsc_h : -70V - Scan high bias (Created by the DC-DC power block of the Y Drive board)
  - g) Vdd : 5V - Logic signal buffer IC and IPM
  - h) Vcc : 15V - Gate drive IC ¹× IPM
- Logic Signal : Supplied by the Logic board. Gate signal of each switch

■ Drive Circuit Architecture and Function Description

- Description of the function of each board


Y-Buffer(Uper)
Y-Buffer(Lower)
Power Board
Logic Board
Logic E-Buffer
Logic F-Buffer
Y pole terminal
(6 Block)
X pole terminal
(3 Block)

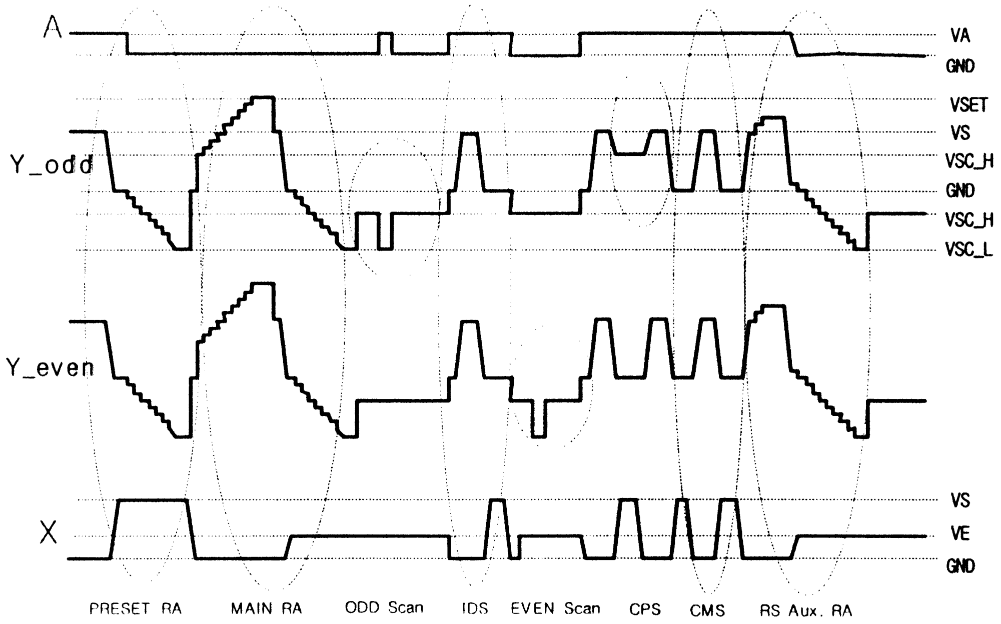
1) X Drive Board
This is connected to the X port part of the panel. 1) Sustain voltage waveform (including ERC) is output, and 2) Ve bias in the Scan section is maintained.

2) Y Drive Board
This is connected to the Y port part of the panel. It outputs 1) Sustain voltage wave form (including ERC), and 2) Y Rising, Falling Ramp waveform, and maintains 3) Vscan bias.

3) Y Buffer Board (Upper, Lower)
This board supplies the Scan waveform to the Y port and consists of Upper and Lower boards. For an HD grade unit, 6 scan driver ICs (TEXAS INSTRUMENT SN755867APZP: 64 outputs) are mounted on the board.

■ Drive Waveform Specifications

- Drive Waveform



- Description of the function of each pulse

1) Y Preset RA Pulse
This is supplied to the first sub-field and erases the discharge status of the previous subfield.

2) Y Main RA Pulse
During the Y Rising Ramp section, approximately 300V~350V (Vscan-h + Vset) of external voltage is supplied to the Y electrode, and a weak discharge is started when each gap voltage is equal to the discharge start voltage. While maintaining the weak discharge, as a whole, negative wall charges are accumulated on the Y electrode and positive wall charges on the X electrode and the address electrode.
During the Y Falling Ramp section, the negative wall charges accumulated on the Y electrode by the approximately 105V of X bias are used to erase the positive wall charges on the X electrode, and the address electrode maintains most of the positive wall charges accumulated during the (0V) Rising Ramp section preparing for the next address discharge.

3) Y Scan Pulse (Odd/Even)
A scan pulse classifies the Y electrode into Odd and Even lines and selects FPC output electrodes sequentially (one line-at-a-time). At this time, Vscan is called the Scan Bias Voltage.
A Vscan voltage of approximately -175 Volt (Vsc_1) is supplied to the electrode lines. For the other lines, -56 volt (Vsc_h is higher than Vscan-l by 120V) is supplied. However, negative wall charges are accumulated on the Y electrode by the Ramp pulse, and positive wall charges are accumulated on the address electrode, and the voltage applied to the cells, to which the Address pulse (70V~75V) has been applied, becomes higher than the discharge voltage. An address Discharge occurs as a result. Since the Scan and Data pulse is applied one line at a time as above, the address time of PDP is very long.

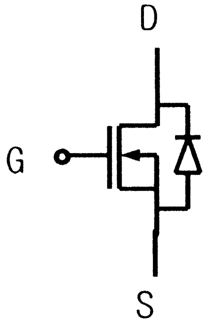
4) IDS Pulse (InDependent Sustain Pulse)
Since an Odd Scan is performed first, the Odd line output sustains optical twice during the IDS section. At this time, a Sustain Discharge does not occur for the Even line because the Even line is not scanned.

5) CPS Pulse (ComPare Sustain Pulse)
By floating the Odd line that caused the Sustain Discharge in the IDS section to the Vscan-h level, and introducing the Sustain Discharge only for Even lines, it compensates for the optical output difference between the Even and Odd lines.

6) CMS Pulse (ComMon Sustain Pulse)
Actual optical is output during the common Sustain Discharge section.

■ Mechanism of the FET Operation and High-Voltage Switching

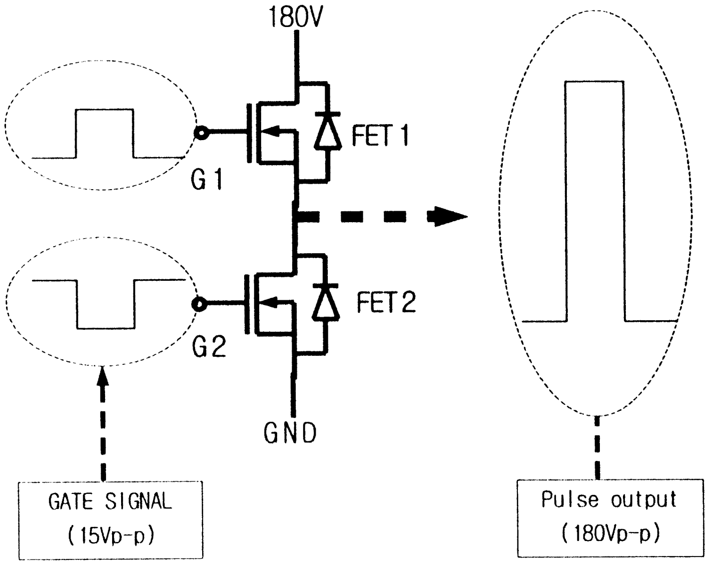
Mechanism of the FET Operation



G : Gate
S : Source
D : Drain

1) When the signal is output to the gate, (positive electric potential) FET short circuits (i.e. Conductor of resistance 0)
2) When no signal is output to the gate (GND), FET changes to an open circuit (i.e. an insulator of resistance ∞).

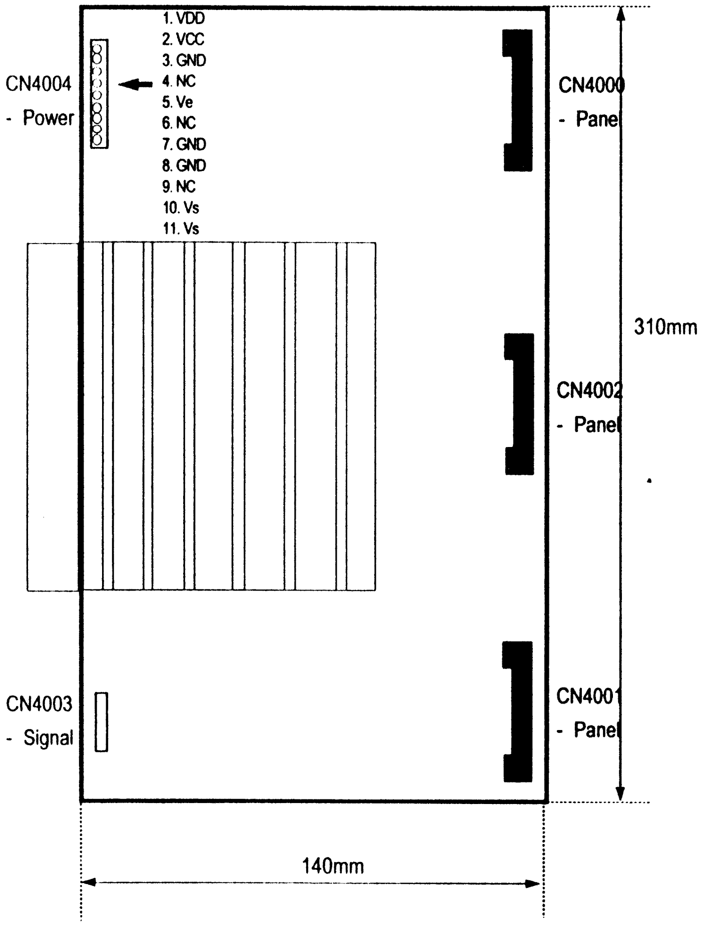
High-Voltage Switching of the FET Operation



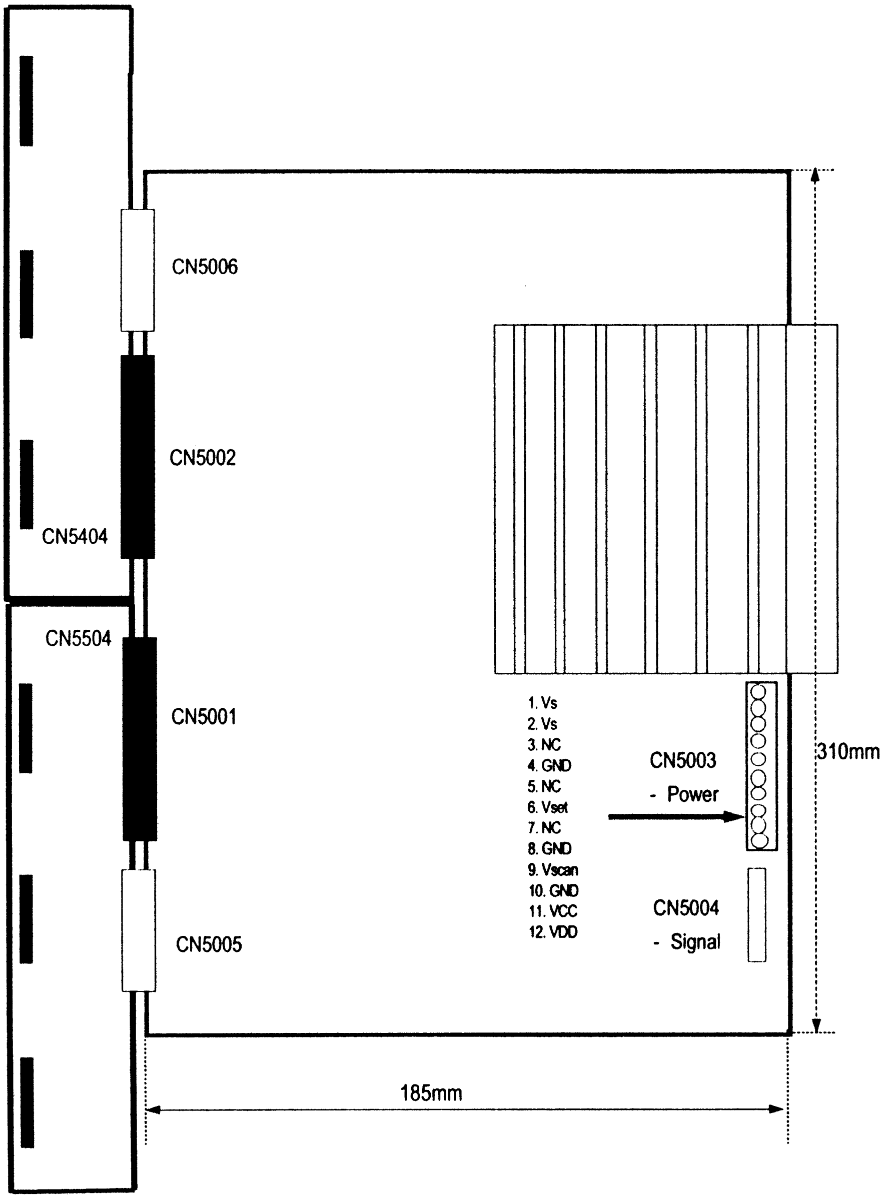
1) When no signal is applied to G1, FET1 is opened and when the signal is applied to G2, FET2 short circuits, GND is output via the output terminal.
2) When a signal is applied to G1, FET1 short circuits and when no signal is applied to G2, FET2 is opened, and 180V is output via the output terminal.

■ Drive Board Connector Layout

1) X-Main


1. VDD
2. VCC
3. GND
4. NC
5. Ve
6. NC
7. GND
8. GND
9. NC
10. Vs
11. Vs
CN4004
- Power
CN4003
- Signal
CN4000
- Pane
CN4002
- Panel
CN4001
- Panel
310mm
140mm

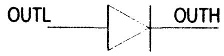
2) Y-Main


CN5401
- Panel
CN5402
- Panel
CN5403
- Panel
CN5404
CN5504
CN5501
- Panel
CN5502
- Panel
CN5503
- Panel
CN5006
CN5002
CN5001
CN5005
1. Vs
2. Vs
3. NC
4. GND
5. NC
6. Vset
7. NC
8. GND
9. Vscan
10. GND
11. VCC
12. VDD
CN5003
- Power
CN5004
- Signal
310mm
185mm

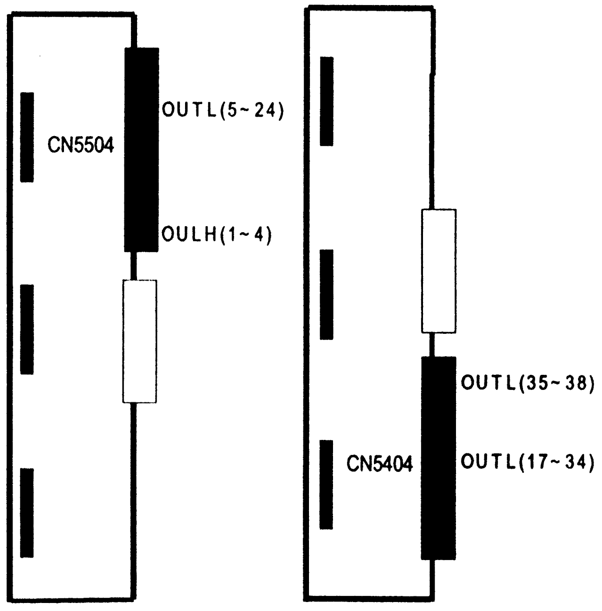
■ Troubleshooting the Drive Board

1) Y Buffer

- To check whether the Y Main board is properly working, check the operation of the Y Buffer first.
- Separate the connector of the Y Buffer from the Y Main board
- Check OUTL and OUTH and confirm that the forward voltage reduction is between 0.4V ~ 0.5V.
  UP - CN5407 1~10pin - OUTH / 11~33pin - OUTL
  LOW - CN5507 50~41pin - OUTH / 40~17pin - OUTL



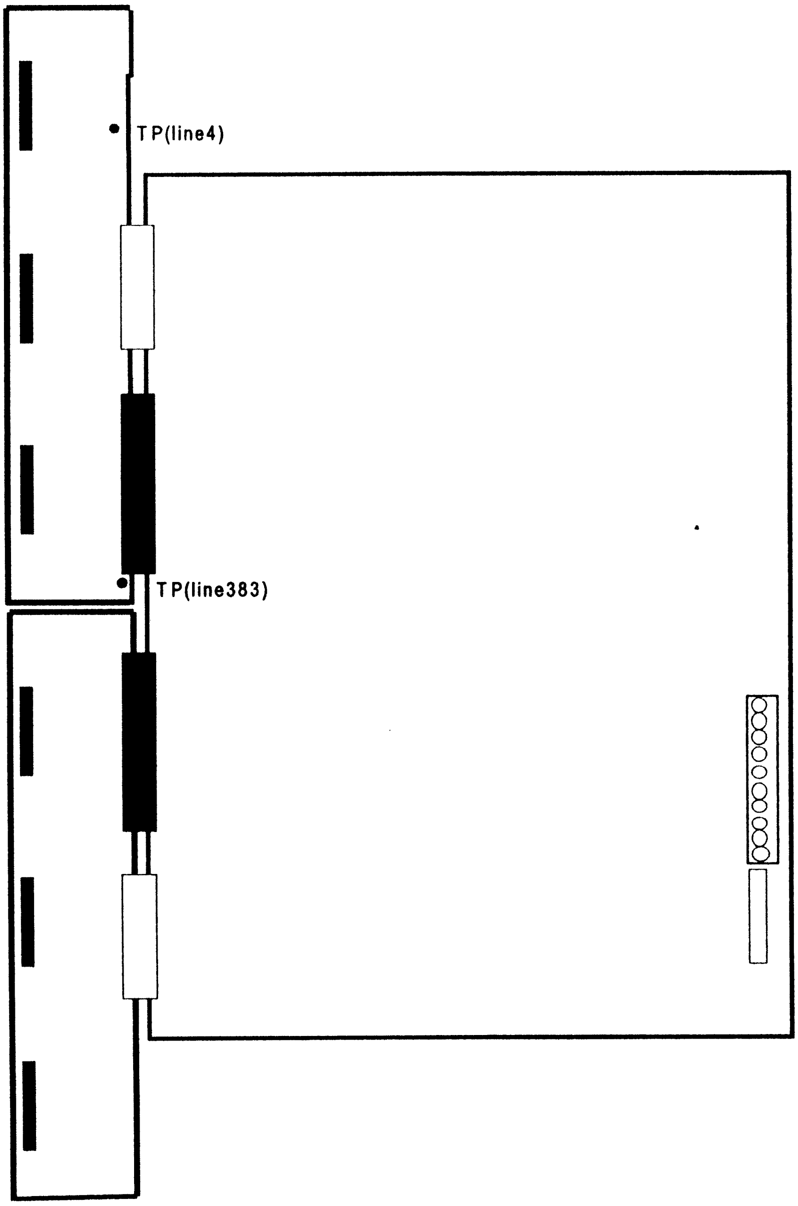
- In addition, the resistance between the points must be higher than a few kΩ .


CN5504
OUTL(5~24)
OULH(1~4)
CN5404
OUTL(35~38)
OUTL(17~34)

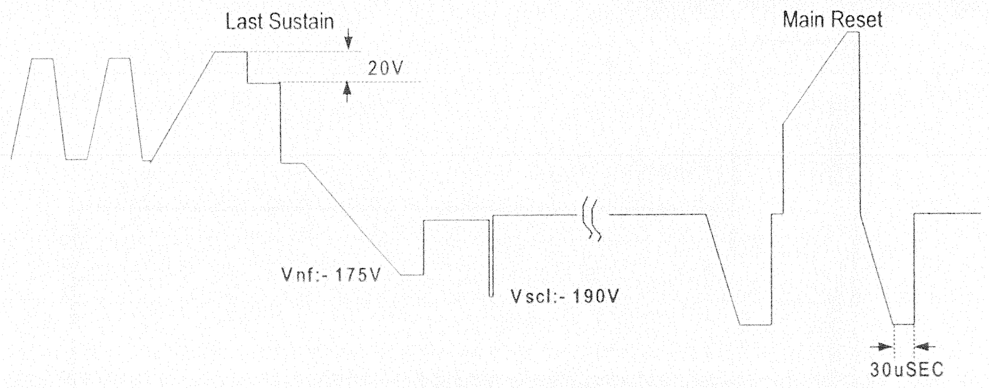
Y- Buffer(Low)   Y- Buffer(UP)

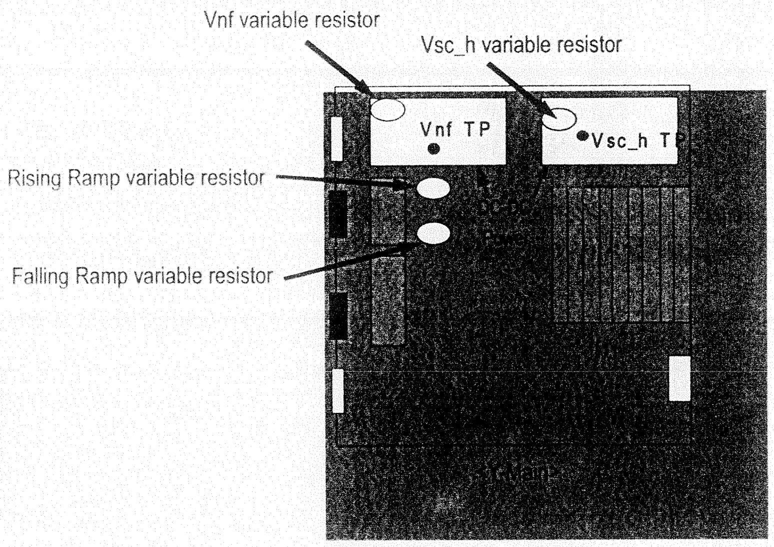
2) Y Main

- Connect the Y Main and Y Buffer, and confirm that the output from TP (line4, line383) of the Y Buffer UP is the same as #Attachment 1 when the power is supplied.



- Adjust the drive waveform so that the last sustain (rising: 15V) and the main reset (falling: 30usec) are the same as those in the figure.


Last Sustain
20V
Main Reset
Vnf:- 175V
Vscl:- 190V
30uSEC


Vnf variable resistor
Vsc_h variable resistor
Vnf TP
Vsc_h TP
Rising Ramp variable resistor
Falling Ramp variable resistor
DC-DC
Y-Main

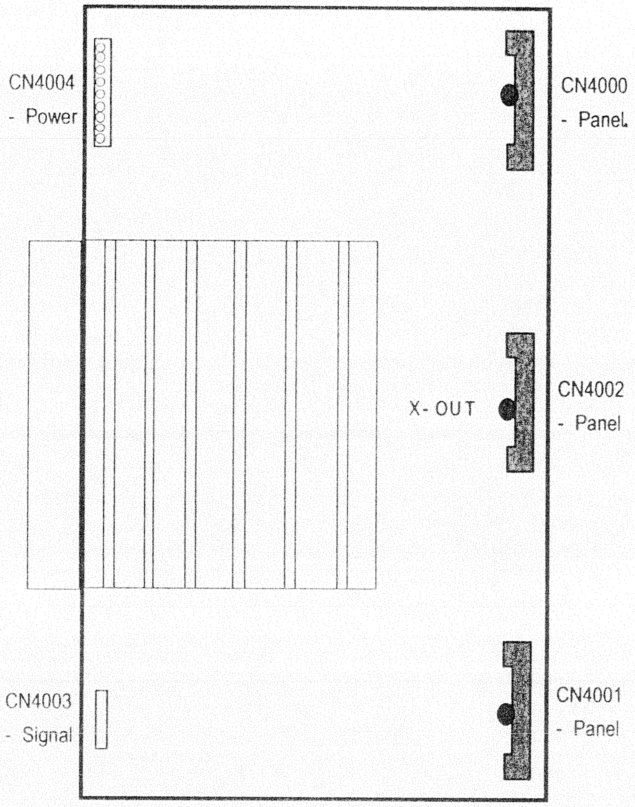
※ The Vsc_h and Vnf voltages are controlled by the DC-DC power part of the Y Main board.

<Voltage Adjustment Specifications>

Vset	Vs	Vsc_l	Vsc_h	Ve	Va	Vnf
195V	210V	-190V	-70V	100V	70V	-175

3) X

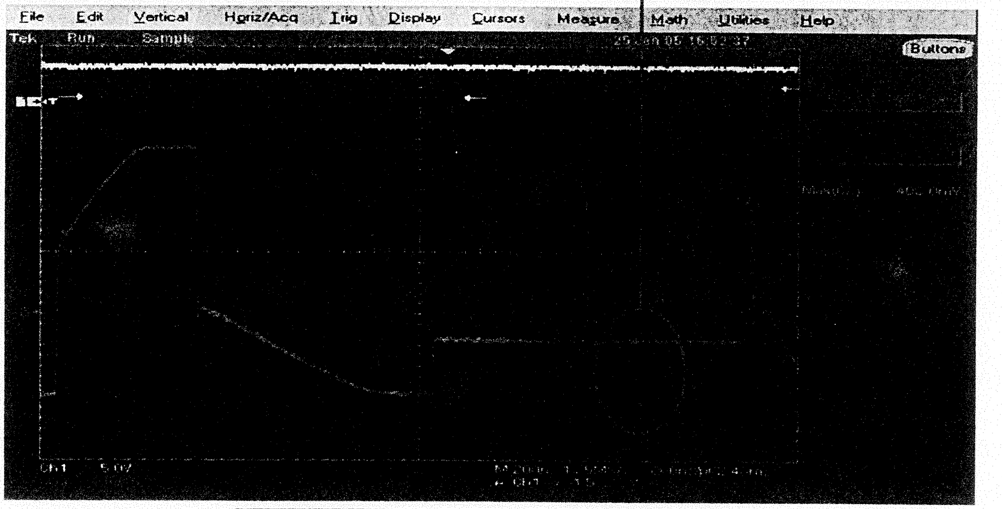
- Check that the output of X-Out of the X board follows the waveform of #Attachment 2 when the power is supplied.


CN4004
- Power
CN4000
- Panel
X- OUT
CN4002
- Panel
CN4003
- Signal
CN4001
- Panel

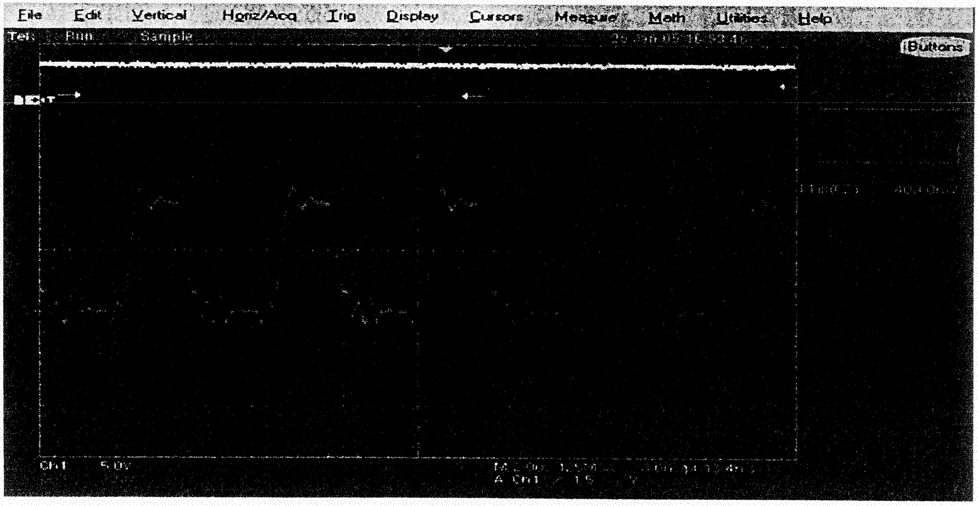
※ Attachment 1

■ Y Output Waveform

The Scan Waveform Must Be Observed


File
Edit
Vertical
Horiz/Acq
Trig
Display
Cursors
Measure
Math
Utilities
Help
Tek
Run
Sample
Buttons
Ch1
5.0V

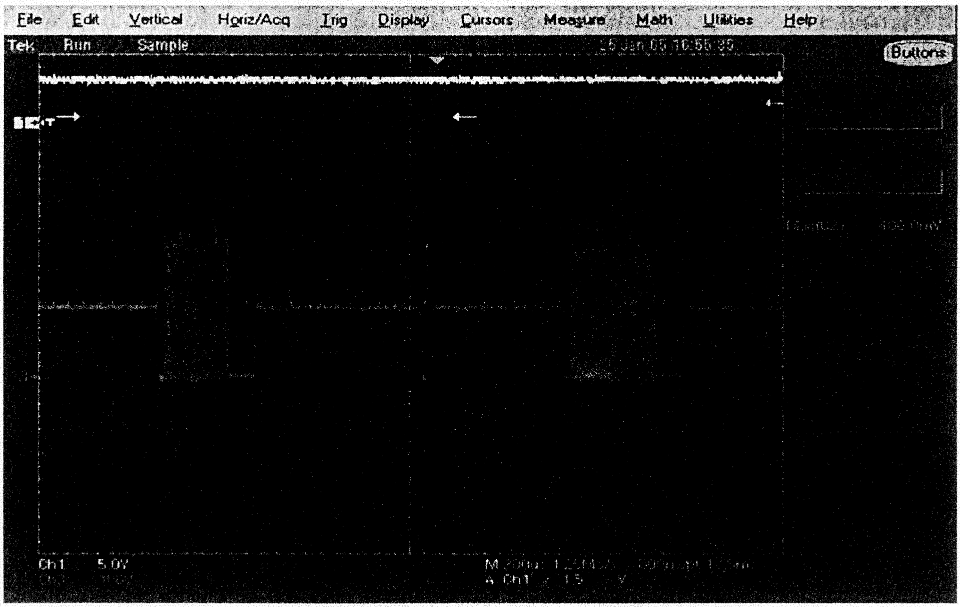
Y Output Waveform (200us/div, 100V/div)


File
Edit
Vertical
Horiz/Acq
Trig
Display
Cursors
Measure
Math
Utilities
Help
Tek
Run
Sample
Buttons
Ch1
5.0V

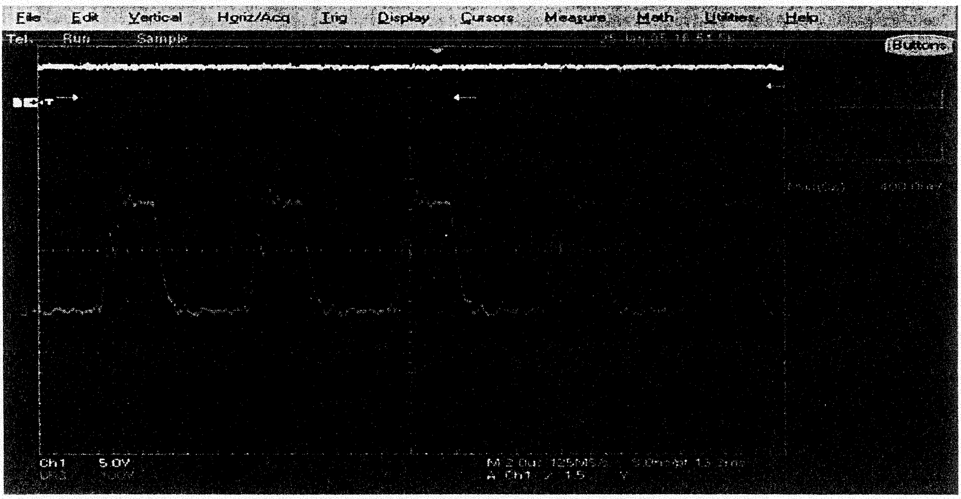
1us/div, 100V/div (Sustain Waveform)

※ Attachment 2

▩ X Output Waveform


File
Edit
Vertical
Horiz/Acq
Trig
Display
Cursors
Measure
Math
Utilities
Help
Tek
Run
Sample
Buttons
Ch1
5.0V

X Output Waveform (200us/div, 100V/div)


File
Edit
Vertical
Horiz/Acq
Trig
Display
Cursors
Measure
Math
Utilities
Help
Tek
Run
Sample
Buttons
Ch1
5.0V

2us/div, 100V/div (Sustain Waveform)

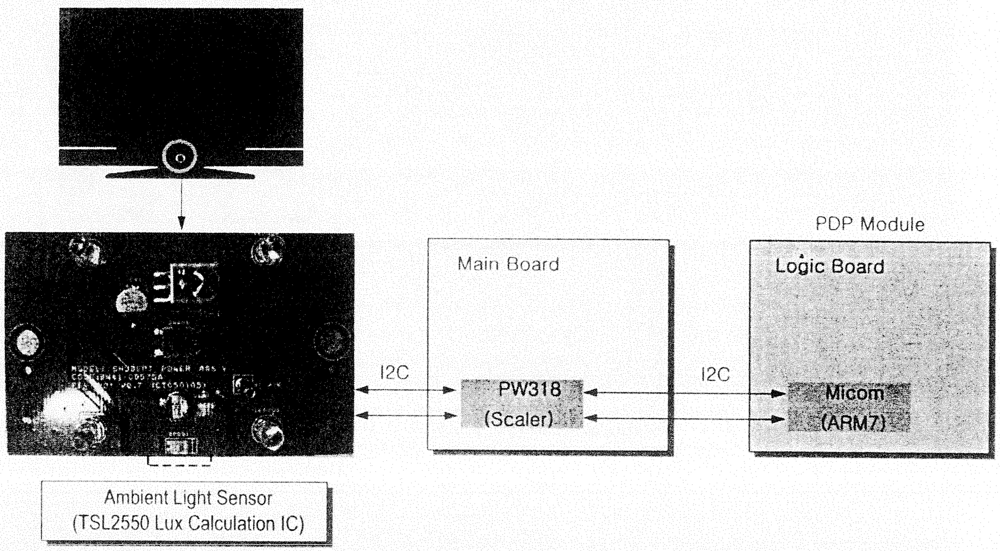
13-2 New Circuit Description

13-2-1 Power Saving Modes (Standard, Automatic, Super Power Saving)

1. Objective

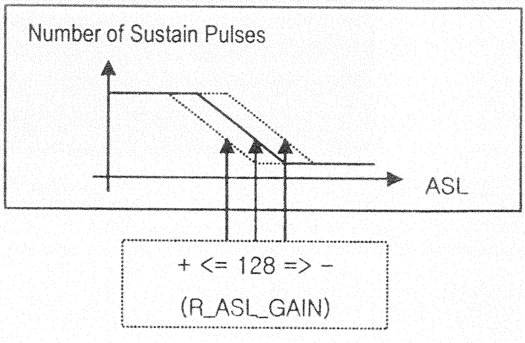
To enhance a sensible visual quality by maintaining an appropriate screen brightness according to the ambient brightness and to reduce power consumption.

2. Circuit Architecture



The CPU PW318 of the Video Board takes the current ambient brightness (in Lux units), stored in the Ambient Light Sensor of Power Assy., which is attached at the front of the PDP, at given intervals through SMBUS communication (identical to I2C) and controls the PDP module to operate with the appropriate illuminance. The I2C bus is used to communicate with the PDP module, and the communication method is the same as the existing communication method.

3. Descriptions of Each Mode
  1) Standard Mode
    Standard Mode is set as standard visual quality.
  2) Auto Power Saving Mode (Ambient Light Sensor)
    This uses the TAOS 4 pin TSL2550 and is currently being used in LCD TVs. It also uses SMBUS, which is the same type as I2C, for communication. The Ambient Light Sensor can detect up to 1846 Lux in normal mode. The data of the sensor can be measured for Lux operations once every 800ms.
    Control is implemented by using R_ASL_GAIN. The number of sustain pulses moves left or right as shown in the figure on the right. For a low gradation condition, the change by R_ASL_GAIN has been minimized considering the degradation of the visual quality. That is, the Auto Power Saving mode screen controlled by the ambient light sensor aims at normal video of medium gradation.

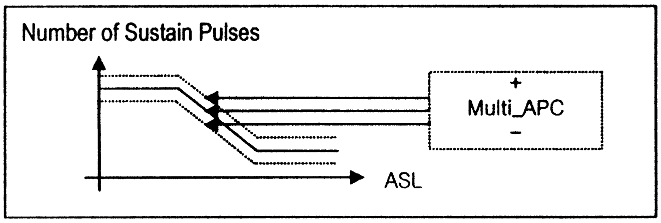


※ The following values are for a normal air signal with 80 Watt attenuation at maximum

Detected Lux	R_ASL_GAIN (Address 0xE9)	Remarks
0 ~ 8	250	- Read the Lux value once per second and change it the target R_ASL_GAIN value by 5 per second according to the changed Lux value. - If more than 3 communication errors or saturation (count1>count0) is detected, the default value is set (R_ASL_GAIN=128).
9 ~ 22	210	
23 ~ 35	170	
Else	128 (default)	

3) Super Power Saving Mode
This uses the Multi APC function of the PDP module, and aims at reducing power consumption more than 100 W for the white pattern, which is similar to the power consumption reduction of other manufacturers.

- Concept of Multi APC
: Controls the number of sustain pulses according to the ASL (Average Signal Level) by R_P_Lower_Gain value.
In the PDP Logic, R_Multi_APC is set to 0X01, Multi_APC operates, and R_P_CM_Gain_SW is set to 0X01 so that the upper and lower limits of the APC Table can be shifted by adjusting the R_P_Lower_Gain value only.
Therefore, the sustain pulse is controllable for the white pattern, even though it was formerly not controllable.



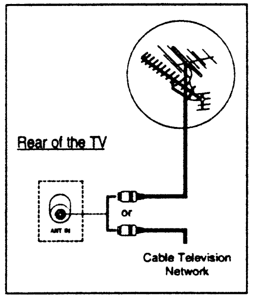
※ Caution: The Super Power Saving Mode screen is darker than that of Standard Mode.

14. Reference Information

14-1 Connection to a 3rd Party Device

⚠Notice: 1. Do not connect to the power source until all connections are done, as this will cause damage to the product.
2. Make sure the sound port is properly connected (right: red, left: white).

14-1-1 Connecting to an Aerial or Cable Television Network



To view television channels correctly, a signal must be received by the set from one of the following sources:

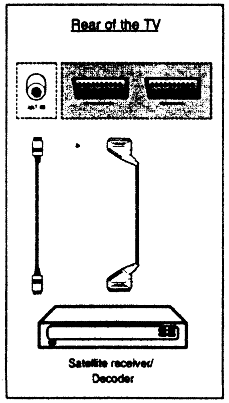
- ◆ An outdoor aerial
- ◆ A cable television network
- ◆ A satellite network

1 In the first three cases, connect the aerial or network input cable to the ANT IN jack on the rear of the television.

2 If you are using an indoor aerial, you may need to turn it when tuning your television until you obtain a picture that is both sharp and clear.
For further details, refer to:
- ◆ "Storing Channels Automatically" on page 17
- ◆ "Storing Channels Manually" on page 18

➢ When installing or re-installing your TV, be sure to use the supplied coaxial antenna cable. If you connect using a different coaxial cable, there is risk of noise or interference to the screen image. (You must not use another general purpose cable. Use the 3M/5M/7M cable supplied by Samsung.)

14-1-2 Connecting a Satellite Receiver or Decoder



In order to watch television programmes broadcast via a satellite network, you must connect a satellite receiver to the rear of TV. Also, in order to descramble a coded transmission signal, you must connect a decoder to the rear of TV.

Using a SCART cable

Connect the receiver (or decoder) SCART cable to one of the SCART connectors on the rear of the television.

Using a coaxial cable

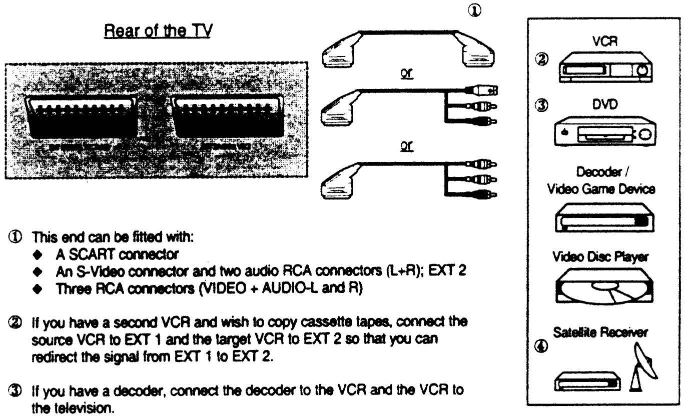
Connect a coaxial cable to the:
- ◆ Receiver (or Decoder) output socket.
- ◆ Television aerial input socket.

➢ If you wish to connect both a satellite receiver (or decoder) and a VCR, you should connect the:
- ◆ Receiver (or Decoder) to the VCR
- ◆ VCR to the television

Otherwise, connect the receiver (or decoder) directly to the television.

14-1-3 Connecting to External Input/Output

"EXT 1" is used for the equipment with an RGB output, such as video game devices or video disc players.



① This end can be fitted with:
- ◆ A SCART connector
- ◆ An S-Video connector and two audio RCA connectors (L+R); EXT 2
- ◆ Three RCA connectors (VIDEO + AUDIO-L and R)

② If you have a second VCR and wish to copy cassette tapes, connect the source VCR to EXT 1 and the target VCR to EXT 2 so that you can redirect the signal from EXT 1 to EXT 2.

③ If you have a decoder, connect the decoder to the VCR and the VCR to the television.

④ When you wish to record a programme, connect the receiver to EXT 1 and the VCR to EXT 2 so that you can redirect the signal from EXT 1 to EXT 2.

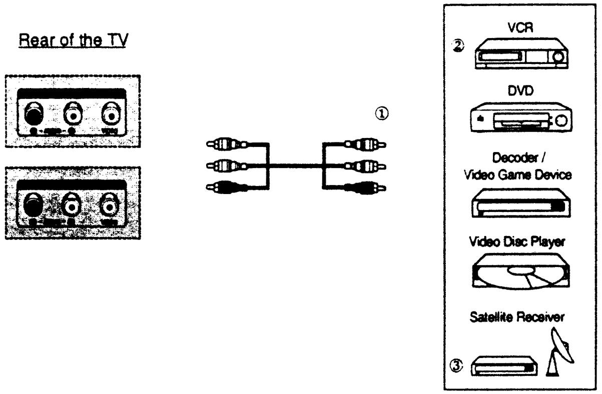
➢ Please be sure to match the color coded input terminals and cable jacks.

Input/Output Specification

Connector	Input				Output
	Video	Audio (L/R)	S-Video	RGB	Video + Audio (L/R)
EXT 1	✔	✔	✔	✔	Only TV output is available.
EXT 2	✔	✔	✔		Output you can choose.

14-1-4 Connecting to the AV Output

"AV OUT" are used for the equipment with an RGB output, such as video game devices or video disc players.


Rear of the TV
①
②
VCR
DVD
Decoder /
Video Game Device
Video Disc Player
Satellite Receiver
③

① This end can be fitted with:
- ◆ Three RCA connectors (VIDEO + AUDIO L/R)

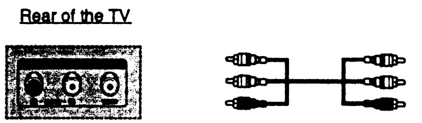
② If you have a second VCR and wish to copy cassette tapes, connect the source VCR to "AV IN" and the target VCR to "AV OUT" so that you can redirect the signal from "AV IN" to "AV OUT".

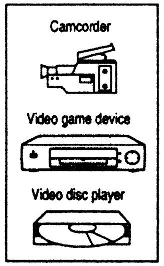
③ When you wish to record a programme, connect the receiver to "AV IN" and the VCR to "AV OUT" so that you can redirect the signal from "AV IN" to "AV OUT".

➢ Please be sure to match the color coded input terminals and cable jacks.

14-1-5 Connecting to the RCA Input

➢ The RCA (VIDEO + AUDIO L/R) connectors are used for equipment, such as camcorders, video disc players, and some video game devices.

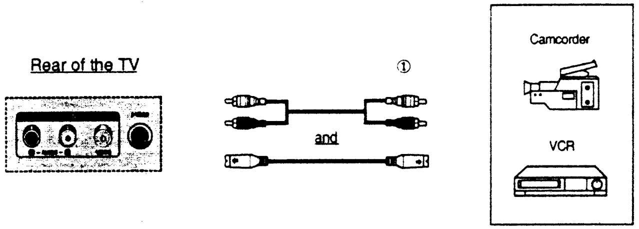

Rear of the TV


Camcorder
Video game device
Video disc player

➢ Please be sure to match the color coded input terminals and cable jacks.

14-1-6 Connecting to the S-Video Input

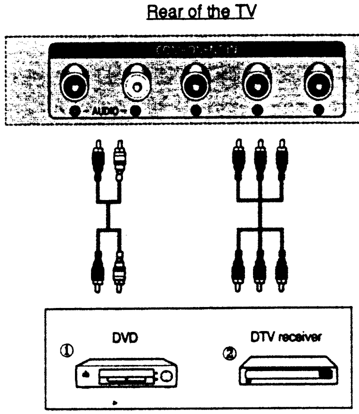
➢ The S-VIDEO and AUDIO L/R connectors are used for equipment with an S-Video output, such as a camcorder or VCR.


Rear of the TV
①
and
Camcorder
VCR

① To play pictures and sound, both the S-VIDEO and AUDIO L/R connectors must be used.

➢ Please be sure to match the color coded input terminals and cable jacks.

14-1-7 Connecting to the Component Input

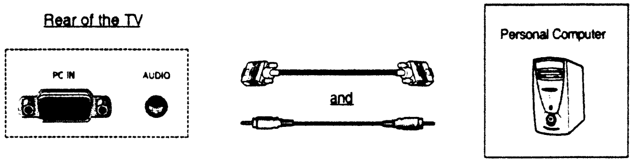

Rear of the TV
AUDIO
DVD
DTV receiver
①
②

The COMPONENT IN connectors are used for equipment with a DVD or DTV receiver output.
(480i/480p/576i/576p/1080i)

➢ Please be sure to match the color coded input terminals and cable jacks.

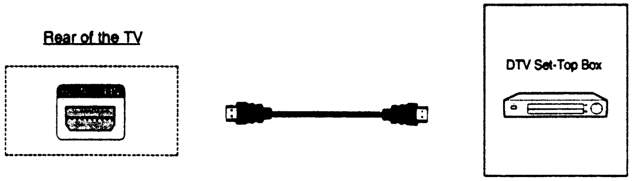
14-1-8 Connecting to the PC Input

➢ The "PC IN" (video) and "AUDIO" connectors are used for interfacing with your PC.



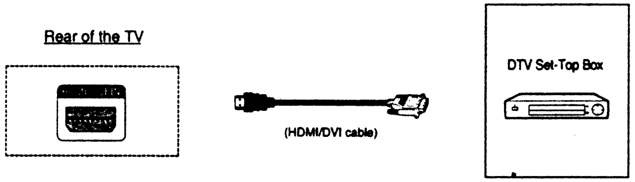
14-1-9 Connecting to the HDMI Input

➢ The "HDMI/DVI IN" connector is used for equipment with a HDMI out.



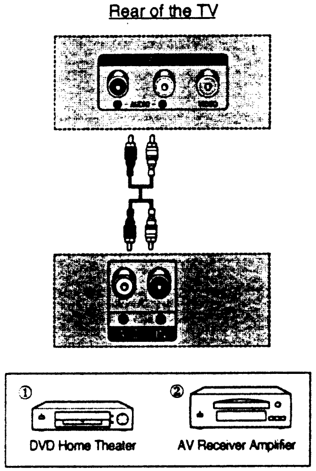
14-1-10 Connecting to the HDMI/DVI Compatible

➢ The "HDMI/DVI IN" connector is used for equipment with a DVI out.



14-1-11 Connecting Home Theater System

Use the "AV OUT" ports of the PDP for Home Theater System Connections.



Connecting the Home Theater System

① Connect the monitoring audio out L and R jacks of the AV OUT on the rear-side connection panel of the PDP TV to the AUDIO IN jacks of the DVD Home Theater System (or AV Receiver) using the audio cable.

② Press the SOURCE (⇥) button to select the desired external device connected to the PDP TV.

③ If you want to hear the sound through separate speakers, cancel the internal amplifier.

➢ Please be sure to match the color coded input terminals and cable jacks.

☛ ◆ Refer to corresponding user's manual from the manufacturer for wiring the speakers to the DVD Home Theater System (or AV Receiver).

◆ Disable the PDP TV internal speaker to enjoy the rich sound through the speakers of your Home Theater System.

To Display the DVD Home Theater

! Turn the PDP on and press the SOURCE (⇥) button to select the Ext.1, Ext.2, or Component .

❷ Be sure to connect the video cable property if desired external input (Ext.1, Ext.2, or Component) cannot be selected.

# Play the DVD after activating the DVD Home Theater System.

$ Use the volume control of the Home Theater System while watching the PDP using the DVD Home Theater, where the PDP TV does not produce the audio.

14-1-12 Other issues related to other products

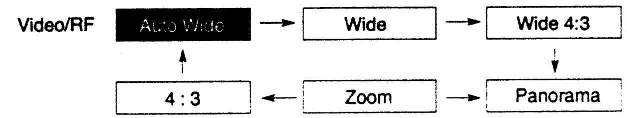
Problem	Descriptions
A fixed screen can cause permanent damage to the TV Braun tube.	Braun, PDP and LCD TVs can all be damaged. When a still image is displayed in a sequence, this can leave stains or after-images due to the characteristics of the panel. However, the DLP TV has the advantage that no stains or after-images are left on the screen. The DLP TV has mirror pixels on the DMD panel that project the beam onto the screen, in which the mirror is a digital representation of 0s and 1s, leaving no trace of light. The mirror returns to a blank state so that no stains or after-images are left.
Confusion between the ANYNET Port and the SERVICE Jack Port	The SAMSUNG SKY500N model has both an ANYNET port and a SERVICE jack port. Because the shape of the ANYNET port on the DLP TV is the same as that of the SERVICE jack port of the SKY500N, it fails to turn the TV off after a connection has been reported. The ANYNET port uses an RS232 port called Phone Jack, and the SERVICE jack port also uses the RS232 port. However, you must not connect the SERVICE port and the ANYNET port. Check if the port is the ANYNET port or the SERVICE port before connecting the port. Even if the TV cannot be turned on after connecting, the TV will turn on if you disconnect the connection.
Length of DVI Cable / PC RGB Cable	- A too long DVI cable may cause a malfunction or degradation of the visual quality due to an attenuation of the signal. There is no recommendation for the cable length at present. In general, although a cable length of up to 5 meters should work, please check if video is properly displayed on the screen after connecting. If you think the length of the cable is longer than for normal use, check the visual quality of the video on the screen and shorten the length, if necessary. - This also applies to the PC RGB (D-Sub) cable. When the length of the cable is longer than for normal use, video may not be displayed on the screen. In this case, shorten the cable length.
When a digitally distributed TV user receives HD-rated broadcasts:	The digital distributed TV (Ready Technique) can render HD sources as HD-rated. However, you need to install a set-top box for this purpose. The digital TV alone cannot render HD broadcasting as HD-rated. Install the formal set-top box for HD broadcasts.
When a digital distributed TV user selects normal size (4:3) to receive SD-rated digita broadcasts:	The digitally distributed TV (Ready Technique) renders any broadcasting service as SD-rated. However, when connected to a set-top box, the digital TV renders HD broadcasts as HD-rated and renders SD as SD-rated. The screen size is scaled to 4:3.
When a digitally built-in TV user receives SD (air) broadcasting:	The digitally integrated TV ("built-in" type) renders SD broadcasting as SD-rated. This can be understood easily. Even a high-resolution TV cannot improve a low resolution picture into high quality. In contrast, an SD-rated TV cannot represent HD broadcasting as HD because the resolution of the TV is lower than the original.
When selecting a picture size of 4:3 in connection with a computer or a multimedia device:	The representation capability of SD or HD-rated depend entirely on the TV set. The HD TV can render HD broadcasting as HD-rated only when it receives HD sources. In the meantime, the HD TV renders SD as SD-rated when it receives SD sources. The picture size has nothing to do with the resolution; TV models like SVP-XXL3HD or SVP-XXL6HD have a size adjustment feature to 16:9, 4:3, Panorama, Zoom1, Zoom2 and Auto Wide. This is about the aspect ratio of the top and bottom boundaries to the overall screen and users can select their preference.

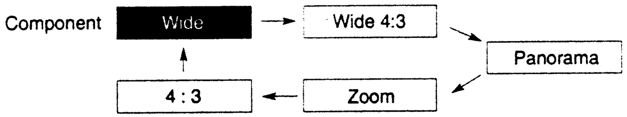
■ SD/HD broadcasts and the TV's display capability are related

1. A digital broadcast should be transmitted in wide screen (an aspect ratio of 16:9) HD. If the broadcasting station converts a conventional program created in normal screen (aspect ratio of 4:3) into a digital signal and broadcasts the signal, the left and right of the picture will not be displayed.
   This symptom also appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.
   - * When watching an SD (normal) broadcast through a Digital (Wide) TV (480P normal broadcast)
   - * When watching an SD (normal) broadcast through a Digital Ready (Wide) TV (Using a set-top-box)
   - * When watching an analog (normal) broadcast through a wide TV
     (When watching a broadcast after changing the aspect ratio of the TV from 16:9 (wide screen) to 4:3)

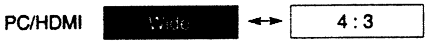
2. When watching a DVD title or video tape in wide screen (21:9) through a wide (16:9) TV, watching video from a computer or game console by selecting the aspect ratio to 4:3, or watching video from a DVD, VCR, computer or game console through a wide TV by selecting the aspect ratio to normal (4:3) or wide (21:9), the left and right, or top and bottom of the picture will not be displayed.
   This symptom appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.

■ Changing the Order of the Picture Size for 16:9 Display Devices





■ Changing the Order of the Picture Size for DTV 1080i/720p Sources



■ Restrictions

1. When you want to change the picture size in PIP 'ON', you must turn the PIP off before changing the size.
   However, you can change the main picture size even in PIP ON for products with no restrictions.

2. When the picture size is not Normal (4:3 for 4:3 display devices, 16:9 for 16:9 display devices) and you turn PIP on, the picture size is changed to Normal.
   However, you can turn PIP on without changing the picture size for products with no restrictions.

3. In the OSD notation for the picture size, 16:9 is represented as "Wide" instead of "16:9" for devices other than with 16:9 dislays.
   Ex: For LCD 15:9 devices, "Wide" is displayed on the OSD instead of "16:9".

4. The picture size can be changed even in the blue screen.
   However, the picture size should be controlled by the product specifications if the change is impossible due to hardware restrictions.

14-2 Technical Terms

Virtual Channel
In digital channels, a virtual channel is used. A virtual channel is a function that enables users to watch a channel by selecting a virtual channel number regardless of the region of the user. Run Auto Channel Scan for digital broadcasts, tune in to a UHF channel number according to the region for terrestrial broadcasts, or tune into a channel number allocated by the cable broadcasting station for a cable TV network, and then select a displayed virtual channel.
For example, even if you tune into channels UHF 14(MBC), 15(KBS1), 16(SBS), 17(KBS2) and 18(EBS) broadcast from Kwanak mountain in Seoul, you can watch the channels using virtual channels such as 11-1(MBC), 9-1(KBS1), 6-1(SBS), 7-1(KBS2) and 10-1(EBS) regardless of your region and the actual local channel number. The virtual channel numbers may be used nationwide, but the virtual channel numbers may vary depending on the local broadcasting stations.
(Since the digital channel numbers may vary depending on your region and can be changed by the broadcasting policy, ask your local broadcasting station or regional cable TV network company about the channel numbers.) If the virtual channel numbers are saved and the TV set can receive digital broadcasting, you can watch a digital channel by pressing the DTV+ button and pressing the first two digits of the corresponding virtual channel number.

Custom Color Adjustment
Using this function, a user can adjust the color according to personal preferences (Red, Grass-Color, Sky-Color, Gold-Color, Skin-Color, White, Standard, Custom) without affecting other colors using automatic selection mode or fine adjustment mode.

Simultaneous Screen
Using this function, a user can view two video signals from separate video sources on a single screen at the same time. For example, you can watch TV and video simultaneously.

Dolby Digital
This is the digital sound standard developed by the Dolby Laboratory. You can select your preferred digital surround mode after connecting external speakers.

Digital Broadcasting
Digital Broadcasting is a television broadcasting signal digitized and transmitted according to the United States' terrestrial digital broadcast standard, or ATSC.

Mono
A type of audio interface that transmits the audio signal through a single channel only.
Through a mono interface, it is hard to experience stereophonic sound and the sound is played using only one speaker.

Reception Sensitivity Amplification (LNA)
A signal amplification technique that amplifies a weak broadcasting signal by applying satellite technology to provide better visual quality even for users in regions where only a weak broadcasting signal is available. (LNA: Low Noise Amplifier)

Sub Woofer
A Sub Woofer is a speaker for ultra bass sound output only whose frequency is as low as 150Hz. There are two types: an active type which includes an amplifier, and a passive type, which requires an additional amplifier.

Stereo
A type of audio interface that transmits audio signal through 2 channels.
Stereo transmits audio signals for right and left sound so that you can experience stereophonic sound, and the sound is played through 2 speakers.

Partial Color Blind Person Mode
Using this function, a user can adjust the red, green or blue colors according to the preferences of the partially color-blind person so that he or she can view the clearest possible picture on the screen.

Analog Broadcasting
Analog Broadcasting is a television broadcasting signal transmitted according to the NTSC standard.

ANTENNA IN Port
The port connecting the TV aerial via a coaxial cable. It is generally used for watching public broadcast programs.

English Caption
A function that displays English captions or text information included in the broadcast signal or video tape. You can use this function for your English studies by watching AFKN or CC marked video tapes.

Video/Audio Ports
You may experience poor visual and audio quality when watching a video tape on channel 3 or 4 through the antenna cable. You can experience better visual and audio quality by connecting the TV and VCR through the Video/Audio ports. The video port is in yellow, and the audio ports are in white and red.

Wide Screen
Wide Screen refers to a screen that is horizontally longer than a conventional TV screen.
While the aspect ratio of a normal TV is 4 : 3, that of a wide screen is 16 : 9.

External Input
External Input is a connected video device such as a VCR, camcorder, DTV receiver, DVD, etc. as a video source.

Satellite Broadcasting
Satellite Broadcasting transmits programs via satellite so that a program can be viable in all areas at a high visual and sound quality. Approximately 100 channels including public broadcast channels are provided. To view a satellite broadcast, you have to install an additional receiver.

Wire Broadcasting
Wire Broadcasting refers to movie, entertainment and educational programs transmitted by a broadcasting station within a hotel or school.

Audio Multimix
Audio Multimix provides 2 audio languages when foreign movie, drama, news, etc. are broadcast. You can select and listen to one of the supported languages or you can select and listen to both languages simultaneously.

After-Image Protection
Using this function, a user can configure the options necessary for protecting the PDP TV screen.

Power Saving Mode
This function adjusts the screen brightness according to the ambient brightness so as to conserve power.

Component Port
The Component Port transmits a separate luminance signal as well as the green, blue, and red color signal and provides the best quality of all video connection types.

Cable Broadcasting
Cable Broadcasting transmits programs via cable instead of via the air. To view cable broadcasting, you have to subscribe to your local cable broadcast service provider and install an additional receiver.

Tuner
A device that enables the selecting of specific channel frequencies for TV or radio.

Panorama Screen
This refers to a screen that corrects the picture distortion due to a screen size mismatch on the TV.

Progressive Scan
Progressive scan displays the entire frame in a single sweep so as to provide clearer and sharper visual quality.

Anynet
Anynet is an AV network system that enables an easy-to-use AV interface for users by controlling all connected AV devices through the Anynet menu when the AV devices of Samsung Electronics are connected.

DVD (Digital Versatile Disc)
DVD is a large capacity storage media that can store multimedia content such as video, games, audio applications, etc. using MPEG-2 video compression technology on a CD sized disc

DRC
This is a sound quality enhancement function that automatically controls audio output so as to prevent sound quality distortion even at loud volumes and correct the sound to the speakers so that you can listen to the sound at the original sound quality.

DVI (Digital Visual Interface) Port
A DVI interface is a standard for high definition television connectivity. It provides a clear picture on the screen using TMDS which minimizes video signal loss.

DVI-D Cable
A type of DVI connector. Using this cable you can only transmit digital signals.

DVI-I Cable
A type of DVI connector. Using this cable you can transmit either digital or analog signals.

HDMI
HDMI (High-Definition Multimedia Interface) is the first industry-supported, uncompressed, all-digital audio/video interface. HDMI provides an interface between any audio/video source, such as a set-top box, DVD player, and A/V receiver and an audio and/or video monitor, such as a digital television (DTV). HDMI supports standard, enhanced, or high-definition video, plus multi-channel digital audio on a single cable. It transmits all ATSC HDTV standards and supports 8-channel digital audio, with bandwidth to spare to accommodate future enhancements and requirements.

PCM
PCM (Pulse Coded Modulation): This refers to an uncompressed digital signal. Use this for an AV amplifier that does not support 5.1 channels when connecting the audio output via optical or coaxial cable.

SRS TruSurround XT
This function provides 5.1 channel surround sound using 2 channel speakers when inputting a stereo audio signal.

VESA Plug & Play

This function enables the automatic recognition of devices when connecting the TV to the computer without additional settings.

S-VIDEO IN Port

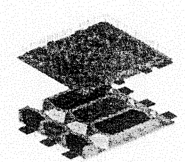
This is called super video. S-Video is a type of video signal which has the video luminance and the color signal separated in order to provide better visual quality.

VHF/UHF

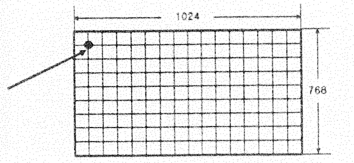
VHF refers to TV channels 2 to 13, and UHF refers to TV channels 14 to 69.

Pixels, Resolution

The pixels are the number of small dots that make up the TV screen. The resolution represents the number of pixels on a screen. For example, if the resolution of a TV is 1366 * 768, it means the width of the screen consists of 1366 pixel columns and the height of the screen consists of 768 pixel rows. In this case, the total number of pixels on the screen is 1,049,088. The more pixels there are, the higher the visual quality that can be achieved because the picture on the screen is displayed with more pixels and therefore with more detail.



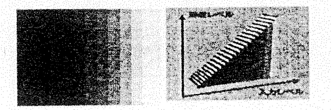
1 Pixel = 3 Sub Pixel(R+G+B)

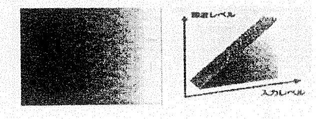


42HD = 786.4K Pixel

Gradation, Color Depth

Gradation describes the number of gradual brightness levels. Since all information is represented by binary numbers in a digital system, the Gradation is determined by the number of bits used to represent the brightness levels of a pixel on the TV screen. For example, if a pixel is represented by 8 bits, the Gradation is 28 or 256. Since a TV uses the three primary colors of light, R, G and B, the number of possible colors for a pixel is 256 x 256 x 256, 16,777,216, or 16.7 million colors. If 12 bits are used for a pixel, the gradation is 212 or 4096 for a color. Since three colors R, G and B are used, 4096 x 4096 x 4096 or 68.7 billion colors are supported per pixel. Since 68.7 billion colors are far more than 16.7 million colors, the picture will be displayed by far more abundant and natural colors using a 12 bit pixel. That is, since Gradation means the number of brightness levels, color represented by 4096 levels appears more natural than color represented by 256 levels.





Contrast

The contrast is the ratio of brightness of the brightest color to the darkest color. The contrast is calculated by dividing the brightness of the brightest color by the brightness of the darkest color. For example, if the brightness of the darkest color is 1 and the brightness of the brightest color is 3000, then the Contrast is 3000/1 or 3000. A higher contrast means that a dark color is displayed darker and bright color is displayed brighter so that the screen contrast can be easily distinguished. The contrast differs from the Gradient which means the number of brightness levels.

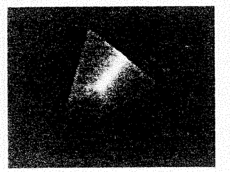
Therefore, if someone says that a 5000:1 contrast displays a color by 5000 levels, he is confusing Contrast with Gradation.

Brightness

Brightness is the brightness per unit screen area, the unit for brightness is candela (cd). For example, 1000cd/m2 means the brightness that is measured when 1000 candles are lit within 1 square meters area.

Color Reproductivity

Each color displayed on the TV screen is implemented by a pixel on color coordinates which have an X and Y axis.



For example, when a pixel on the X coordinate 0.65 and the Y coordinate 0.74 is displayed as a color and it becomes visible on the TV screen. While the possible color coordinate area is very wide, the color coordinate area of the signal broadcast from a broadcast station is smaller than that of possible color coordinates. Moreover, a TV provides a smaller color coordinate area than that of the signal from the broadcasting station even though the size of the color coordinate area varies depending on the TV model. In general, Color Reproductivity is used as follows:

The Color reproductivity of a TV is a certain % of NTSC. This means the TV displays that particular % of the color coordinate area of the NTSC signal broadcast by the broadcasting station. In general, a CRT TV provides the highest functional color reproductivity.